Seismic Retrofit Project


STATE OF CALIFORNIA

**DEPARTMENT OF TRANSPORTATION**

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# NOTICE TO CONTRACTORS

# AND

# SPECIAL PROVISIONS

**FOR CONSTRUCTION ON**

## STATE HIGHWAY

**IN**

**SAN DIEGO COUNTY IN SAN DIEGO ON ROUTE 75 FROM THE END OF THE TOLL BRIDGE TO ROUTE 5 AND ON ROUTE 5 FROM 0.1 MILE NORTH OF THE SAMPSON STREET OVERCROSSING TO 0.1 MILE NORTH OF THE CROSBY STREET UNDERCROSSING**

**DISTRICT 11, ROUTE 75,5**

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For use in Connection with Standard Specifications **DATED JULY, 1992**, Standard Plans **DATED JULY, 1992**, and Labor Surcharge And Equipment Rental Rates.

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**CONTRACT NO. 11-0219U4**

## INFORMAL BIDS CONTRACT

**11-SD-75,5-R21.9/R22.3,R13.9/R14.2**

**Bids Open: October 22, 1998**

**Dated: August 10, 1998**

**OSD**

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# IMPORTANT
# SPECIAL NOTICES

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- Attention is directed to Section 2, Section 3, Sections entitled "DVBE Records," "Performance of DVBE Subcontractors and Suppliers," and "DVBE Goal for this Project," of the Special Provisions. Attention is also directed to the Caltrans Bidder - DVBE - Information form and Good Faith Efforts forms in the Proposal and Contract book for this project.

- The bidder's attention is directed to the following special requirements for this project concerning submission of DVBE information, award and execution of contract, and beginning of work:

  First-tier subcontractors that will be used for meeting DVBE goals must be listed in the "List of Subcontractors" form regardless of dollar amount of work to be performed. Second- and lower-tier subcontractors need not be listed on the "List of Subcontractors" form. Other, non-DVBE subcontractors are to be listed on the "List of Subcontractors" form in accordance with the requirements in Section 2-1.054 of the Standard Specifications and the Special Provisions.

  Identify second- and lower-tier DVBE subcontractors on the "Caltrans Bidder DVBE Information" form.

  DVBE information shall be submitted **with the bid proposal**. (See **Section 2-1.04** of the special provisions.) The evaluation of the effort to meet the DVBE goal will be based on the information provided with the bid proposal. If the goal was not met, Caltrans' determination of good faith effort will be based on the information provided with the bid, and the decision will be final. Bidders and all subcontractors listed in the DVBE Information shall be available, by phone, on the day following the bid opening.

  The DVBE information shall include all DVBE partners.

  It is anticipated that this contract will be awarded within **10 days after bid opening**.

  If the Bidder submits cash or a cashier's check or a certified check as the form of bidder's security (see Section 2-1.07 of the Standard Specifications), the Bidder shall also include with the bid submittal a signed and notarized affidavit from an admitted surety insurer that contract bonds, as required by Section 3-1.02, "Contract Bonds," of the Standard Specifications, will be provided within the specified time for executing and returning the contract for approval.

  If the bidder claims a mistake was made in his bid, the bidder shall give the Department written notice within 48-hours, not including Saturdays, Sundays and legal holidays, after the opening of bids of the alleged mistake in lieu of the 5 days specified in Section 2-1.095, "Relief of Bidders," in the Standard Specifications. (See Section 2-1.01 of the special provisions.) Caltrans' FAX number for submitting this information is (916)227-6282. Such information shall be submitted "Attention Office Engineer."

  The contract shall be signed by the successful bidder and shall be received with contract bonds by the Office of Office Engineer within **4 days**, including Saturdays, Sundays and legal holidays, after the bidder has received notice that the contract has been awarded. (See Section 3 of the special provisions.)

  If properly executed by the bidder, it is anticipated the contract will be approved within 24 hours of when the executed contract and contract bonds are received by the Department.
  The Contractor shall begin work within 5 calendar days after receiving notice that the contract has been approved. The contract work shall be completed before the expiration of **540 WORKING DAYS** beginning at **12:01 a.m. on the FIRST WORKING DAY AFTER CONTRACT AWARD.** (See Section 4 of the special provisions.)

The following forms have been included at the end of the Proposal and Contract book to assist the successful bidder in early execution of the contract documents: Payment Bond, Performance Bond, Insurance, Vendor Data Record.

# CONTRACT NO. 11-0219U4

| DESIGN OVERSIGHT APPROVAL | | REGISTRATION NO. | DATE |
|---|---|---|---|
| Leon G. Edmonds | Leon G. Edmonds | 42054 | 3/31/00 |

Approved as to impact on State facilities and conformance with applicable State standards and practices and that technical oversight was performed as described in the California Department of Transportation A & E Consultant Services Manual.

The special provisions contained herein have been prepared by or under the direction of the following Registered Persons.

**STRUCTURES**

REGISTERED CIVIL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
James L. Rucker
No. 47796
Exp. 12/31/99
CIVIL
STATE OF CALIFORNIA

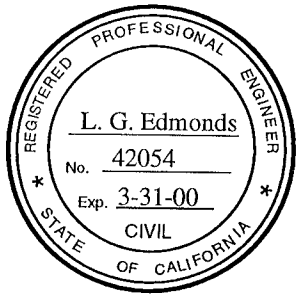
# CONTRACT NO. 11- 0219U4

The special provisions contained herein have been prepared by or under the direction of the following Registered Persons.

**HIGHWAY**

Leon G. Edmonds

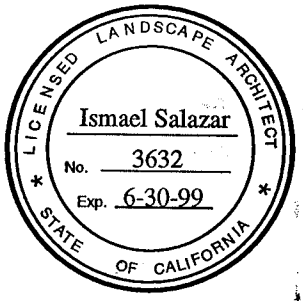
REGISTERED CIVIL ENGINEER




**LANDSCAPE**

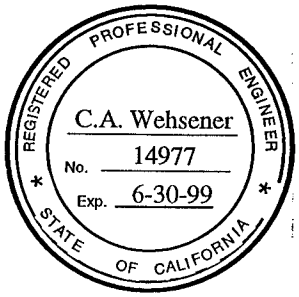
Ismael Salazar

LICENSED LANDSCAPE ARCHITECT




**ELECTRICAL (HIGHWAY)**

REGISTERED CIVIL ENGINEER



# CONTRACT NO. 11-0219U4

**The special provisions contained herein have been prepared by or under the direction of the following Registered Persons.**

## ELECTRICAL (STRUCTURES)

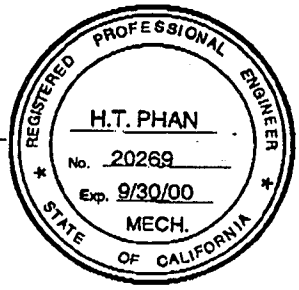
W.E. Morehead

REGISTERED ELECTRICAL ENGINEER


## MECHANICAL

H.T. Phan

REGISTERED MECHANICAL ENGINEER



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## DEPARTMENT OF TRANSPORTATION

## NOTICE TO CONTRACTORS

# THIS IS AN INFORMAL BIDS CONTRACT

**CONTRACT NO. 11-0219U4**

**11-SD-75,5-R21.9/R22.3,R13.9/R14.2**

Sealed proposals for the work shown on the plans entitled:

**STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY IN SAN DIEGO COUNTY IN SAN DIEGO ON ROUTE 75 FROM THE END OF THE TOLL BRIDGE TO ROUTE 5 AND ON ROUTE 5 FROM 0.1 MILE NORTH OF THE SAMPSON STREET OVERCROSSING TO 0.1 MILE NORTH OF THE CROSBY STREET UNDERCROSSING**

will be received at the Department of Transportation, 2501 Pullman Street, Building B, Mail Stop (MS) 150, Santa Ana, CA 92705, until 2 o'clock p.m. on October 22, 1998, at which time they will be publicly opened and read in Building B, 2nd Floor Auditorium at the same address.

Proposal forms for this work are included in a separate book entitled:

**STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROPOSAL AND CONTRACT FOR CONSTRUCTION ON STATE HIGHWAY IN SAN DIEGO COUNTY IN SAN DIEGO ON ROUTE 75 FROM THE END OF THE TOLL BRIDGE TO ROUTE 5 AND ON ROUTE 5 FROM 0.1 MILE NORTH OF THE SAMPSON STREET OVERCROSSING TO 0.1 MILE NORTH OF THE CROSBY STREET UNDERCROSSING**

General work description: Seismic retrofitting of San Diego-Coronado Bay bridge (portion).

This project has a goal of 3 percent disabled veteran business enterprise (DVBE) participation.

No pre-bid meeting is scheduled for this project.

Bids are required for the entire work described herein.

At the time this contract is awarded, the Contractor shall possess either a Class A license or a combination of Class C licenses which constitutes a majority of the work.

The Contractor must also be properly licensed at the time the bid is submitted, except that on a joint venture bid a joint venture license may be obtained by a combination of licenses after bid opening but before award in accordance with Business and Professions Code, Section 7029.1.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

Preference will be granted to bidders properly certified as a "Small Business" as determined by the Department of General Services, Office of Small and Minority Business at the time of bid opening in accordance with the provisions in Section 2-1.04, "Small Business Preference," of the special provisions, and Section 1896 et seq, Title 2, California Code of Regulations. A form for requesting a "Small Business" preference is included with the bid documents. Applications for status as a "Small Business" must be submitted to the Department of General Services, Office of Small and Minority Business, 1531 "I" Street, Second Floor, Sacramento, CA 95814, Telephone No. (916) 322-5060.

A reciprocal preference will be granted to "California company" bidders in accordance with Section 6107 of the Public Contract Code. (See Sections 2 and 3 of the special provisions.) A form for indicating whether bidders are or are not a "California company" is included in the bid documents and is to be filled in and signed by all bidders.

Project plans, special provisions, and proposal forms for bidding this project can only be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, MS #26, Sacramento, California 95814, FAX No. (916) 654-7028, Telephone No. (916) 654-4490. Use FAX orders to expedite orders for project plans, special provisions and proposal forms. FAX orders must include credit card charge number, card expiration date and authorizing signature. Project plans, special provisions, and proposal forms may be seen at the above Department of Transportation office and at the offices of the District Directors of Transportation at Santa Ana, Oakland, and the district in which the work is situated. Standard Specifications and Standard Plans are available through the State of California, Department of Transportation, Publications Unit, 1900 Royal Oaks Drive, Sacramento, CA 95815, Telephone No. (916) 445-3520.

Cross sections for this project are available at the office of the District Director of Transportation of the district in which the work is situated.

The successful bidder shall furnish a payment bond and a performance bond.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at the Labor Compliance Office at the offices of the District Director of Transportation for the district in which the work is situated, and available from the California Department of Industrial Relations' Internet Web Site at: http://www.dir.ca.gov. Future effective general prevailing wage rates which have been predetermined and are on file with the Department of Industrial Relations are referenced but not printed in the general prevailing wage rates.

DEPARTMENT OF TRANSPORTATION

Deputy Director Transportation Engineering

Dated August 10, 1998

RRF/SM

| Item | Item Code | Item | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|---|---|---|---|---|---|---|
| 1 | 011835 | TIME RELATED OVERHEAD | WDAY | 540 | | |
| 2 | 014160 | TEMPORARY NOISE BLANKET | SQYD | 22,400 | | |
| 3 | 070010 | PROGRESS SCHEDULE (CRITICAL PATH) | LS | LUMP SUM | LUMP SUM | |
| 4 | 014161 | ELECTRONIC MOBILE DAILY DIARY COMPUTER SYSTEM DATA DELIVERY | LS | LUMP SUM | LUMP SUM | |
| 5 | 071301 | TEMPORARY FENCE | LF | 7,800 | | |
| 6 | 014162 | RESURFACE BASKETBALL COURT | LS | LUMP SUM | LUMP SUM | |
| 7 | 014163 | PICNIC AREA IMPROVEMENTS | LS | LUMP SUM | LUMP SUM | |
| 8 | 014164 | DEVELOP ART PROTECTION PLAN | LS | LUMP SUM | LUMP SUM | |
| 9 | 014165 | ART PROTECTION PLAN | LS | LUMP SUM | LUMP SUM | |
| 10 | 014166 | TEMPORARY PORTABLE RESTROOM | LS | LUMP SUM | LUMP SUM | |
| 11 | 074019 | PREPARE STORM WATER POLLUTION PREVENTION PLAN | LS | LUMP SUM | LUMP SUM | |
| 12 | 074020 | WATER POLLUTION CONTROL | LS | LUMP SUM | LUMP SUM | |
| 13 | 120090 | CONSTRUCTION AREA SIGNS | LS | LUMP SUM | LUMP SUM | |
| 14 | 120100 | TRAFFIC CONTROL SYSTEM | LS | LUMP SUM | LUMP SUM | |
| 15 | 120151 | TEMPORARY TRAFFIC STRIPE (TAPE) | LF | 17,400 | | |
| 16 | 120152 | TEMPORARY PAVEMENT MARKING (TAPE) | SQFT | 30 | | |
| 17 | 120165 | CHANNELIZER (SURFACE MOUNTED) | EA | 14 | | |
| 18 | 014167 | TRAFFIC PLASTIC DRUM | EA | 120 | | |
| 19 | 120300 | TEMPORARY PAVEMENT MARKER | EA | 1,870 | | |
| 20 | 128650 | PORTABLE CHANGEABLE MESSAGE SIGN | EA | 4 | | |

| Item | Item Code | Item | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|---|---|---|---|---|---|---|
| 21 | 129000 | TEMPORARY RAILING (TYPE K) | LF | 7,160 | | |
| 22 | 129100 | TEMPORARY CRASH CUSHION MODULE | EA | 120 | | |
| 23 | 150717 | REMOVE TRAFFIC STRIPE AND PAVEMENT MARKING | SQFT | 3,560 | | |
| 24 | 150820 | REMOVE INLET | EA | 5 | | |
| 25 | 151272 | SALVAGE METAL BEAM GUARD RAILING | LF | 20 | | |
| 26 | 014168 | RECONSTRUCT CHAIN LINK FENCE (8' HEIGHT) | LF | 650 | | |
| 27 | 014169 | RECONSTRUCT CHAIN LINK FENCE (8' HEIGHT) WITH BARBED WIRE AND RAZOR WIRE | LF | 32 | | |
| 28 | 014170 | RECONSTRUCT CHAIN LINK FENCE (6' HEIGHT) | LF | 390 | | |
| 29 | 151572 | RECONSTRUCT METAL BEAM GUARD RAILING | LF | 75 | | |
| 30 | 014171 | RESET FENCE | LF | 280 | | |
| 31 | 152390 | RELOCATE ROADSIDE SIGN | EA | 5 | | |
| 32 | 014172 | MODIFY PLAYGROUND | LS | LUMP SUM | LUMP SUM | |
| 33 | 153221 | REMOVE CONCRETE BARRIER | LF | 43 | | |
| 34 | 153230 | REMOVE CONCRETE BARRIER (TYPE 50) | LF | 370 | | |
| 35 | 014173 | REMOVE CONCRETE AND FLAGSTONE | CY | 89 | | |
| 36 | 153531 | ACCESS OPENING, SOFFIT | EA | 3 | | |
| 37 | 157561 | BRIDGE REMOVAL (PORTION), LOCATION A | LS | LUMP SUM | LUMP SUM | |
| 38 | 157562 | BRIDGE REMOVAL (PORTION), LOCATION B | LS | LUMP SUM | LUMP SUM | |
| 39 | 157563 | BRIDGE REMOVAL (PORTION), LOCATION C | LS | LUMP SUM | LUMP SUM | |
| 40 | 157564 | BRIDGE REMOVAL (PORTION), LOCATION D | LS | LUMP SUM | LUMP SUM | |

| Item | Item Code | Item | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|---|---|---|---|---|---|---|
| 41 | 157565 | BRIDGE REMOVAL (PORTION), LOCATION E | LS | LUMP SUM | LUMP SUM | |
| 42 | 160101 | CLEARING AND GRUBBING | LS | LUMP SUM | LUMP SUM | |
| 43 | 170101 | DEVELOP WATER SUPPLY | LS | LUMP SUM | LUMP SUM | |
| 44 | 180101 | BINDER (DUST PALLIATIVE) | TON | 25 | | |
| 45 (F) | 192003 | STRUCTURE EXCAVATION (BRIDGE) | CY | 5,444 | | |
| 46 (F) | 193003 | STRUCTURE BACKFILL (BRIDGE) | CY | 2,935 | | |
| 47 | 200001 | HIGHWAY PLANTING | LS | LUMP SUM | LUMP SUM | |
| 48 | 014174 | MAINTAIN PARK | LS | LUMP SUM | LUMP SUM | |
| 49 | 204099 | PLANT ESTABLISHMENT WORK | LS | LUMP SUM | LUMP SUM | |
| 50 | 208000 | IRRIGATION SYSTEM | LS | LUMP SUM | LUMP SUM | |
| 51 | 208805 | 6" WELDED STEEL PIPE CONDUIT (.250" THICK) | LF | 25 | | |
| 52 | 260201 | CLASS 2 AGGREGATE BASE | CY | 44 | | |
| 53 | 390101 | ASPHALT CONCRETE | TON | 430 | | |
| 54 | 394040 | PLACE ASPHALT CONCRETE DIKE (TYPE A) | LF | 100 | | |
| 55 (S) | 490603 | 24" CAST-IN-DRILLED-HOLE CONCRETE PILING | LF | 2,089 | | |
| 56 | 498016 | 16" CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL) | LF | 405 | | |
| 57 (F) | 510051 | STRUCTURAL CONCRETE, BRIDGE FOOTING | CY | 2,471 | | |
| 58 (F) | 510053 | STRUCTURAL CONCRETE, BRIDGE | CY | 3,566 | | |
| 59 (F) | 510502 | MINOR CONCRETE (MINOR STRUCTURE) | CY | 48 | | |
| 60 | 511106 | DRILL AND BOND DOWEL | LF | 50,208 | | |

| Item | Item Code | Item | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|---|---|---|---|---|---|---|
| 61 | 511109 | DRILL AND BOND DOWEL (EPOXY CARTRIDGE) | EA | 3,627 | | |
| 62 (S) | 515065 | CORE CONCRETE (6") | LF | 792 | | |
| 63 (S) | 515068 | CORE CONCRETE (9") | LF | 858 | | |
| 64 (S) | 047333 | CORE AND PRESSURE GROUT DOWELS | LF | 5,153 | | |
| 65 | 517961 | SOUND WALL (BARRIER) (MASONRY BLOCK) | SQFT | 1,420 | | |
| 66 | 518002 | SOUND WALL (MASONRY BLOCK) | SQFT | 3,900 | | |
| 67 (S-F) | 520102 | BAR REINFORCING STEEL (BRIDGE) | LB | 1,731,251 | | |
| 68 | 620020 | 8" ALTERNATIVE PIPE CULVERT | LF | 82 | | |
| 69 | 620100 | 18" ALTERNATIVE PIPE CULVERT | LF | 526 | | |
| 70 | 650014 | 18" REINFORCED CONCRETE PIPE | LF | 156 | | |
| 71 | 650018 | 24" REINFORCED CONCRETE PIPE | LF | 380 | | |
| 72 | 681023 | 6" PLASTIC PIPE | LF | 240 | | |
| 73 | 703509 | 6" WELDED STEEL PIPE (.134" THICK) | LF | 60 | | |
| 74 | 731502 | MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION) | CY | 220 | | |
| 75 | 014175 | FLAGSTONE | SQYD | 240 | | |
| 76 | 731530 | MINOR CONCRETE (TEXTURED PAVING) | SQFT | 5,040 | | |
| 77 | 014176 | MINOR CONCRETE (COLORED) | CY | 220 | | |
| 78 | 750001 | MISCELLANEOUS IRON AND STEEL | LB | 13,800 | | |
| 79 (S-F) | 750496 | MISCELLANEOUS METAL (RESTRAINER - PIPE TYPE) | LB | 193,469 | | |
| 80 (S-F) | 750498 | MISCELLANEOUS METAL (RESTRAINER - CABLE TYPE) | LB | 57,215 | | |

| Item | Item Code | Item | Unit of Measure | Estimated Quantity | Unit Price | Item Total |
|---|---|---|---|---|---|---|
| 81 (S-F) | 047334 | MISCELLANEOUS METAL (HIGH STRENGTH ROD) | LB | 30,068 | | |
| 82 | 833183 | CONCRETE BARRIER (TYPE 27SV) | LF | 200 | | |
| 83 | 839492 | CONCRETE BARRIER (TYPE 50E MODIFIED) | LF | 340 | | |
| 84 | 840506 | 8" THERMOPLASTIC TRAFFIC STRIPE | LF | 1,080 | | |
| 85 | 840515 | THERMOPLASTIC PAVEMENT MARKING | SQFT | 83 | | |
| 85 | 840656 | PAINT TRAFFIC STRIPE (2-COAT) | LF | 8,880 | | |
| 87 | 850101 | PAVEMENT MARKER (NON-REFLECTIVE) | EA | 950 | | |
| 88 | 850102 | PAVEMENT MARKER (REFLECTIVE) | EA | 380 | | |
| 89 | 860401 | LIGHTING | LS | LUMP SUM | LUMP SUM | |
| 90 | 014177 | LIGHTING (CITY PARK) | LS | LUMP SUM | LUMP SUM | |
| 91 | 860810 | INDUCTIVE LOOP DETECTOR | LS | LUMP SUM | LUMP SUM | |
| 92 | 861503 | MODIFY LIGHTING | LS | LUMP SUM | LUMP SUM | |
| 93 | 869001 | BRIDGE ELECTRICAL SYSTEM | LS | LUMP SUM | LUMP SUM | |
| 94 | 991065 | MECHANICAL WORK | LS | LUMP SUM | LUMP SUM | |
| 95 | 999990 | MOBILIZATION | LS | LUMP SUM | LUMP SUM | |

# STATE OF CALIFORNIA
# DEPARTMENT OF TRANSPORTATION

# SPECIAL PROVISIONS

**Annexed to Contract No. 11-0219U4**

## SECTION 1. SPECIFICATIONS AND PLANS

The work embraced herein shall be done in accordance with the Standard Specifications dated July, 1992, and the Standard Plans dated July, 1992, of the Department of Transportation insofar as the same may apply and in accordance with the following special provisions.

In case of conflict between the Standard Specifications and these special provisions, the special provisions shall take precedence over and be used in lieu of the conflicting portions.

## SECTION 2. PROPOSAL REQUIREMENTS AND CONDITIONS

### 2-1.01 GENERAL

The bidder's attention is directed to the provisions in Section 2, "Proposal Requirements and Conditions," of the Standard Specifications and these special provisions for the requirements and conditions which the bidder must observe in the preparation of the proposal form and the submission of the bid.

In addition to the subcontractors required to be listed in accordance with Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications, each proposal shall have listed therein the name and address of each DVBE subcontractor to be used for credit in meeting the goal, and to whom the bidder proposes to directly subcontract portions of the work. The list of subcontractors shall also set forth the portion of work that will be done by each subcontractor listed. A sheet for listing the subcontractors is included in the Proposal.

If the Bidder submits cash or a cashier's check or a certified check as the form of bidder's security (See said Section 2-1.07 of the Standard Specifications), the Bidder shall also include with the bid submittal a signed and notarized affidavit from an admitted surety insurer that contract bonds, as required by Section 3-1.02, "Contract Bonds," of the Standard Specifications, will be provided within the time specified elsewhere in these special provisions for executing and returning the contract for approval.

The form of Bidder's Bond mentioned in the last paragraph in Section 2-1.07, "Proposal Guaranty," of the Standard Specifications will be found following the signature page of the Proposal.

In accordance with Public Contract Code Section 7106, a Noncollusion Affidavit is included in the Proposal. Signing the Proposal shall also constitute signature of the Noncollusion Affidavit.

If the bidder claims a mistake was made in his bid, the bidder shall give the Department written notice within 48 hours, not including Saturdays, Sundays and legal holidays, after the opening of bids of the alleged mistake, in lieu of the 5 days specified in Section 2-1.095, "Relief of Bidders," in the Standard Specifications. The notice of alleged mistake shall specify in detail how the mistake occurred.

### 2-1.02 DISABLED VETERAN BUSINESS ENTERPRISE (DVBE)

Section 10115 of the Public Contract Code requires the Department to implement provisions to establish a goal for Disabled Veterans Business Enterprise (DVBE) in contracts.

It is the policy of the Department that Disabled Veteran Business Enterprise (DVBE) shall have the maximum opportunity to participate in the performance of contracts financed solely with state funds. The Contractor shall ensure that DVBEs have the maximum opportunity to participate in the performance of this contract and shall take all necessary and reasonable steps for this assurance. The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of subcontracts. Failure to carry out the requirements of this paragraph shall constitute a breach of contract and may result in termination of this contract or other remedy the Department may deem appropriate.

Bidder's attention is directed to the following:

(a) "Disabled Veteran Business Enterprise" (DVBE) means a business concern certified as a DVBE by the Office of Small and Minority Business, Department of General Services.

(b) A DVBE may participate as a prime contractor, subcontractor, joint venture partner with a prime or subcontractor, or vendor of material or supplies;

(c) Credit for DVBE prime contractors will be 100 percent.

(d) A DVBE joint venture partner must be responsible for specific contract items of work, or portions thereof. Responsibility means actually performing, managing and supervising the work with its own forces. The DVBE joint venture partner must share in the ownership, control, management responsibilities, risks and profits of the joint venture. The DVBE joint venturer must submit the joint venture agreement with the Caltrans Bidder DVBE Information form required in Section 2-1.04, "Submission of DVBE Information," elsewhere in these special provisions;

(e) A DVBE must perform a commercially useful function, i.e., must be responsible for the execution of a distinct element of the work and must carry out its responsibility by actually performing, managing and supervising the work;

(f) Credit for DVBE vendors of materials or supplies is limited to 60 percent of the amount to be paid to the vendor for the material unless the vendor manufactures or substantially alters the goods;

(g) Credit for trucking by DVBEs will be as follows:

(1) One hundred percent of the amount to be paid when a DVBE trucker will perform the trucking with his/her own trucks, tractors and employees;

(2) Twenty percent of the amount to be paid to DVBE trucking brokers who do not have a "certified roster";

(3) One hundred percent of the amount to be paid to DVBE trucking brokers who have:

a. signed agreements that all trucking will be performed by DVBE truckers if credit is toward the DVBE goal;

b. a "certified roster" showing that all trucks are owned by DVBEs; and

c. a signed statement on the "certified roster" that indicates that 100 percent of revenue paid by the broker will be paid to the DVBEs listed on the "certified roster".

(4) Twenty percent of the amount to be paid to trucking brokers who are not a DVBE but who have:

a. signed agreements with DVBE truckers assuring that at least 20 percent of the trucking will be performed by DVBE truckers if credit is toward the DVBE goal;

b. a "certified roster" showing that at least 20 percent of the number of trucks are owned by DVBE truckers; and

c. a signed statement on the "certified roster" that indicates that at least 20 percent of the revenue paid by the broker will be paid to the DVBEs listed on the "certified roster".

The "certified roster" referred to herein shall conform to the requirements in Section 3-1.01A, "DVBE Information," elsewhere in these special provisions;

(h) DVBEs and DVBE joint venture partners must be certified DVBEs as determined by the Department of General Services, Office of Small and Minority Business, 1531 "I" Street, Second Floor, Sacramento, CA 95814, on the date bids for the project are opened before credit may be allowed toward the DVBE goal.

It is the Contractor's responsibility to verify that DVBEs are certified;

(i) Noncompliance by the Contractor with these requirements constitutes a breach of this contract and may result in termination of the contract or other appropriate remedy for a breach of this contract.

**2-1.03 DVBE GOAL FOR THIS PROJECT**

The Department has established the following goal for Disabled Veteran Business Enterprise (DVBE) participation for this project:

Disabled Veteran Business Enterprise (DVBE), 3 percent.

It is the bidder's responsibility to make a sufficient portion of the work available to subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DVBE subcontractors and suppliers, so as to assure meeting the goal for DVBE participation.

The Office of Small and Minority Business, Department of General Services, may be contacted at (916) 322-5060 or visit their internet web site at www.dgs.ca.gov/osmb for program information and certification status. The Department's Business Enterprise Program may also be contacted at (916) 227-9599 or the internet web site at http://www.dot.ca.gov/hq/bep/.

**2-1.04 SUBMISSION OF DVBE INFORMATION**

The required DVBE information shall be submitted **WITH THE BID** on the following "CALTRANS BIDDER - DVBE - INFORMATION" and "TELEPHONE LOG AND LIST OF REJECTED DVBEs."

It is the bidder's responsibility to meet the goal for DVBE participation or to establish that, prior to bidding, the bidder made good faith efforts to do so based on the information in the "CALTRANS BIDDER - DVBE - INFORMATION" and "TELEPHONE LOG AND LIST OF REJECTED DVBEs."

The information to show that the DVBE goal will be met on the "CALTRANS BIDDER - DVBE - INFORMATION" form shall include the names of DVBEs and DVBE joint venture partners to be used, with a complete description of work or supplies to be provided by each and the dollar value of each such DVBE transaction. When 100 percent of a contract item of work is not to be performed or furnished by a DVBE, a description of the exact portion of said work to be performed or furnished by that DVBE shall be included in the DVBE information, including the planned location of said work. DVBE prime contractors shall enter their Office of Small and Minority Business (OSMB) - DVBE reference number and/or DBA name, as listed with OSMB, on the line provided. (Note: DVBE subcontractors to whom the bidder proposes to directly subcontract portions of the work are to be named in the bid. - See Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications and Section 2-1.01, "General," of these special provisions, regarding listing of proposed subcontractors).

If credit for trucking by a DVBE trucking broker is shown on the bidder's information as 100 percent of the revenue to be paid by the broker is to be paid to DVBE truckers, a "certified roster" of the broker's trucks to be used must be included with the bid. The "certified roster" must indicate that all the trucks are owned by certified DVBEs and must show the DVBE truck numbers, owner's name, Public Utilities Commission Cal-T numbers, and the DVBE certification numbers. The roster must indicate that all revenue paid by the broker will be paid to DVBEs listed on the "certified roster".

If credit for trucking by a trucking broker who is not a DVBE is shown in the bidder's information, a "certified roster" of the broker's trucks to be used must be included with the bid. The "certified roster" must indicate that at least 20 percent of the broker's trucks are owned by DVBEs and must show the DVBE truck numbers, owner's name, Public Utilities Commission Cal-T numbers, and the DVBE certification numbers. The roster must indicate that at least 20 percent of the revenue paid by the broker will be paid to DVBEs listed on the "certified roster".

Information necessary to establish the bidder's good faith efforts to meet the DVBE goals shall be included in the "TELEPHONE LOG AND LIST OF REJECTED DVBEs" form located in the Proposal and shall include:

1. The names, dates and times of notices of all certified DVBEs solicited by telephone for this project and the dates, times and methods used for following up initial solicitations to determine with certainty whether the DVBEs were interested.
2. The names of DVBEs who submitted bids which were not accepted and the reason for rejection of the DVBEs bid.

Bidders are cautioned that even though their submittal indicates they will meet the stated DVBE goal, their submittal should also include the telephone log and rejected DVBE information to protect their eligibility for award of the contract in the event the Department, in its review, finds that the goal has not been met.

It is the bidders responsibility to be available, by phone, both the day of and the day after the bid opening to answer questions and provide good faith effort clarification. The bidder shall also assure that listed DVBEs are available, by phone, on both days.

If it is found that the goal has not been met, the Department will review the information submitted with the bid to determine the bidder’s good faith effort. In the event that the Department determines that a bidder has not made a good faith effort based on the information submitted with the bid and its independent investigation, the Department’s decision will be final.

**2-1.05 SMALL BUSINESS PREFERENCE**

Attention is directed to "Award and Execution of Contract" elsewhere in these special provisions.

Attention is also directed to the Small Business Procurement and Contract Act, Government Code Section 14835, et seq and Title 2, California Code of Regulations, Section 1896, et seq.

Bidders who wish to be classified as a Small Business under the provisions of those laws and regulations, shall be certified as Small Business by the Department of General Services, Office of Small and Minority Business, 1531 "I" Street, Second Floor, Sacramento, CA 95814.

To request Small Business Preference, bidders shall fill out and sign the Request for Small Business Preference form in the Proposal and shall attach a copy of their Office of Small and Minority Business (OSMB) small business certification letter to the form. The bidder's signature on the Request for Small Business Preference certifies, under

penalty of perjury, that the bidder is certified as Small Business at the time of bid opening and further certifies, under penalty of perjury, that under the following conditions, at least 50 percent of the subcontractors to be utilized on the project are either certified Small Business or have applied for Small Business certification by bid opening date and are subsequently granted Small Business certification.

The conditions requiring the aforementioned 50 percent level of subcontracting by Small Business subcontractors apply if:

1. The lowest responsible bid for the project exceeds $100 000; and
2. The project work to be performed requires a Class A or a Class B contractor's license; and
3. Two or more subcontractors will be used.

If the above conditions apply and Small Business Preference is granted in the award of the contract, the 50 percent Small Business subcontractor utilization level shall be maintained throughout the life of the contract.

**2-1.06 CALIFORNIA COMPANY PREFERENCE**

Attention is directed to "Award and Execution of Contract" of these special provisions.

In accordance with the requirements of Section 6107 of the Public Contract Code, a "California company" will be granted a reciprocal preference for bid comparison purposes as against a nonresident contractor from any state that gives or requires a preference to be given contractors from that state on its public entity construction contracts.

A "California company" means a sole proprietorship, partnership, joint venture, corporation, or other business entity that was a licensed California contractor on the date when bids for the public contract were opened and meets one of the following:

(1) Has its principal place of business in California.

(2) Has its principal place of business in a state in which there is no local contractor preference on construction contracts.

(3) Has its principal place of business in a state in which there is a local contractor construction preference and the contractor has paid not less than $5000 in sales or use taxes to California for construction related activity for each of the five years immediately preceding the submission of the bid.

To carry out the "California company" reciprocal preference requirements of Section 6107 of the Public Contract Code, all bidders shall fill out and sign the California Company Preference form in the Proposal. The bidder's signature on the California Company Preference form certifies, under penalty of perjury, that the bidder is or is not a "California company" and if not, the amount of the preference applied by the state of the nonresident Contractor.

A nonresident Contractor shall disclose any and all bid preferences provided to the nonresident Contractor by the state or country in which the nonresident Contractor has its principal place of business.

Proposals without the California Company Preference form filled out and signed may be rejected.

**2-1.07 ESCROW OF BID DOCUMENTATION**

Bid documentation shall consist of all documentary and calculated information generated by the Contractor in preparation of the bid. The bid documentation shall conform to the requirements in these special provisions, and shall be submitted to the Department and held in escrow for the duration of the contract.

In the resolution of disputes involving the project, the escrowed bid documents will be the only documents accepted from the Contractor regarding preparation of the bid.

In signing the proposal, the bidder certifies that the material submitted for escrow constitutes all the documentary information used in preparation of the bid and that he has personally examined the contents of the container and that they are complete.

The bidder shall include with the proposal, the identification of the bidder's representative authorized to present the bid documentation and the persons responsible for preparing the bidder's estimate.

Nothing in the bid documentation shall be construed to change or modify the terms or conditions of the contract.

Escrowed bid documentation will not be used for pre-award evaluation of the Contractor's anticipated methods of construction, nor to assess the Contractor's qualifications for performing the work.

Bid documentation shall clearly itemize the Contractor's estimated costs of performing the work. The documentation submitted shall be complete and so detailed as to allow for an in-depth analysis of the Contractor's estimate.

The bid documentation shall include, but not be limited to: quantity takeoffs; rate schedules for the direct costs and the time- and nontime-related indirect costs for labor (by craft), plant and equipment ownership and operation, permanent and expendable materials, insurance and subcontracted work; estimated construction schedules, including sequence and duration and development of production rates; quotations from subcontractors and suppliers; estimates of field and home

office overhead; contingency and margin for each contract item of work; and other reports, calculations and information used by the bidder to arrive at the estimate submitted with the proposal.

The Contractor shall also submit bid documentation for each subcontractor whose total subcontract exceeds $250,000. Subcontractor bid documentation shall be enclosed with the Contractor's submittal. The examination of subcontractors' bid documentation will be accomplished in the same manner as for the Contractor's bid documentation. If a subcontractor is replaced, bid documentation for the new subcontractor shall be submitted for review and escrow before authorization for the substitution will be granted. Upon request of a subcontractor, the bid documentation from that subcontractor shall be reviewed only by the subcontractor and the Department.

If the bidder is a joint venture, the bid documentation shall include the joint venture agreement, the joint venture estimate comparison and final reconciliation of the joint venture estimate.

Copies of the proposals submitted by the first, second and third low bidders will be provided to the respective bidders for inclusion in the bid documentation to be escrowed.

The first, second, and third apparent low bidders shall present the bid documentation for escrow at the District 11 Office, 2829 Juan Street San Diego, CA, on the first Wednesday, at 10:00 a.m., following the time indicated in the "Notice to Contractors" for the opening of bids.

Bid documentation shall be submitted in a sealed container, clearly marked with the bidder's name, date of submittal, project contract number and the words, "Bid Documentation for Escrow."

Failure to submit the actual and complete bid documentation as specified herein within the time specified shall be cause for rejection of the proposal.

Upon submittal, the bid documentation of the apparent low bidder will be examined and inventoried by the duly designated representatives of the Contractor and the Department to ensure that the bid documentation is authentic, legible, and in accordance with the terms of this section "Escrow of Bid Documentation." The examination will not include review of, nor will it constitute approval of, proposed construction methods, estimating assumptions or interpretation of the contract. The examination will not alter any conditions or terms of the contract. The acceptance or rejection by the Department that the submitted bid documents are in compliance with this section "Escrow of Bid Documentation" shall be completed within 48 hours of the time the bid documentation is submitted by the Contractor.

At the completion of the examination, the bid documents will be sealed and jointly deposited at an agreed commercial bank.

Bid documentation submitted by the second and third apparent low bidders will be jointly deposited at agreed commercial banks. If the apparent low bid is withdrawn or rejected, the bid documentation of the second low bidder will be examined and inventoried in the manner specified above, then sealed and deposited again in escrow. If the second low bid is withdrawn or rejected, the bid documentation of the third low bidder will be examined and inventoried in the manner specified above, then sealed and deposited again in escrow. Upon execution and final approval of the contract or rejection of all bids, the bid documentation will be returned to any remaining unsuccessful bidders.

The escrowed bid documentation may be examined by the designated representatives of both the Department and the Contractor, at any time deemed necessary by either the Department or the Contractor to assist in the negotiation of price adjustments and change orders, or in the settlement of claims or disputes.

If requested by a Disputes Review Board, the escrowed bid documentation may be utilized to assist the Board in its recommendations.

The bid documentation submitted by the Contractor will be held in escrow until the contract has been completed, the ultimate resolution of all disputes and claims has been achieved and receipt of final payment has been accepted by the Contractor. The escrowed bid documentation will then be released from escrow to the Contractor.

The bid documentation submitted by the bidder is, and shall remain, the property of the bidder, and is subject to only joint review by the Department and the bidder. The Department stipulates and expressly acknowledges that the submitted bid documentation constitutes trade secrets and will not be deemed public records. This acknowledgment is based on the Department's express understanding that the information contained in the bid documentation is not known outside the bidder's business, is known only to a limited extent and only by a limited number of employees of the bidder, is safeguarded while in the bidder's possession, is extremely valuable to the bidder and could be extremely valuable to the bidder's competitors by virtue of it reflecting the bidder's contemplated techniques of construction. The Department acknowledges that the bid documentation includes a compilation of information used in the bidder's business, intended to give the bidder an opportunity to obtain an advantage over competitors who do not know of or use the contents of the documentation. The Department agrees to safeguard the bid documentation, and all information contained therein, against disclosure, including disclosure of subcontractor bid documentation to the Contractor and other subcontractors to the fullest extent permitted by law. However, in the event of arbitration or litigation, the bid documentation shall be subject to discovery, and the Department assumes no responsibility for safeguarding the bid documentation unless the Contractor has obtained an appropriate protective order issued by the arbitrator or the court.

Full compensation for preparing the bid documentation, presenting it for escrow and reviewing it for escrow and upon request of the Engineer shall be considered as included in the contract prices paid for the various items of work, and no additional compensation will be allowed therefor.

The direct cost of depositing the bid documentation in escrow at the agreed commercial bank will be paid by the State.

## SECTION 3. AWARD AND EXECUTION OF CONTRACT

The bidder's attention is directed to the provisions in Section 3, "Award and Execution of Contract," of the Standard Specifications and these special provisions for the requirements and conditions concerning award and execution of contract.

The award of contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed and who has met the goals for DVBE participation or has demonstrated, to the satisfaction of the Department, good faith effort to do so. Meeting the goals for DVBE participation or demonstrating, to the satisfaction of the Department, good faith efforts to do so is a condition for being eligible for award of contract.

Each of the two bonds required in Section 3-1.02, "Contract Bonds," of the Standard Specifications shall be in a sum equal to 100 percent of the contract price.

It is anticipated that this contract will be awarded within 10 days after the bid opening.

The contract shall be signed by the successful bidder and shall be received with contract bonds by the Department within **4 days**, including Saturdays, Sundays and legal holidays, after the bidder has received notice that the contract has been awarded. Failure to do so shall be just cause for forfeiture of the proposal guaranty. The executed contract documents shall be delivered to the following address: Department of Transportation, P.O. Box 942874, Sacramento, CA 94274-0001, Attn: Office Engineer (MS 43)- Contracts.

Within 2 days, not including Saturdays, Sundays and legal holidays, of return of the executed contract and bonds, the Department will notify the successful bidder of either approval of the contract by the Attorney General or the attorney appointed and authorized to represent the Department of Transportation, or disapproval of the submittal. Should the Department fail to provide notification within said 2 days, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

A "Vendor Data Record" form will be included in the contract documents to be executed by the successful bidder. The purpose of the form is to facilitate the collection of taxpayer identification data. The form shall be completed and returned to the Department by the successful bidder with the executed contract and contract bonds. For the purposes of the form, vendor shall be deemed to mean the successful bidder. The form is not to be completed for subcontractors or suppliers. Failure to complete and return the "Vendor Data Record" form to the Department as provided herein will result in the retention of 20 percent of payments due the contractor and penalties of up to $20 000. This retention of payments for failure to complete the "Vendor Data Record" form is in addition to any other retention of payments due the Contractor.

Attention is also directed to "Small Business Preference" of these special provisions. Any bidder who is certified as a Small Business by the Department of General Services, Office of Small and Minority Business will be allowed a preference in the award of this contract, if it be awarded, under the following conditions:

(1) The apparent low bidder is not certified as a Small Business, or has not filled out and signed the Request for Small Business Preference included with the bid documents and attached a copy of their Office of Small and Minority Business (OSMB) small business certification letter to the form; and

(2) The bidder filled out and signed the Request for Small Business Preference form included with the bid documents and attached a copy of their Office of Small and Minority Business (OSMB) small business certification letter to the form.

The small business preference will be a reduction in the bid submitted by the small business contractor, for bid comparison purposes, by an amount equal to 5 percent of the amount bid by the apparent low bidder, the amount not to exceed $50 000. If this reduction results in the small business contractor becoming the low bidder, then the contract will be awarded to the small business contractor on the basis of the actual bid of the small business contractor notwithstanding the reduced bid price used for bid comparison purposes.

Attention is also directed to "California Company Preference" of these special provisions.

The amount of the California company reciprocal preference shall be equal to the amount of the preference applied by the state of the nonresident contractor with the lowest responsive bid, except where the "California company" is eligible for a California Small Business Preference, in which case the preference applied shall be the greater of the two, but not both.

If the bidder submitting the lowest responsive bid is not a "California company" and with the benefit of the reciprocal preference, a "California company's" responsive bid is equal to or less than the original lowest responsive bid, the "California company" will be awarded the contract at its submitted bid price except as provided below.

Small business bidders shall have precedence over nonsmall business bidders in that the application of the "California company" preference for which nonsmall business bidders may be eligible shall not result in the denial of the award to a small business bidder.

## SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES

Attention is directed to the provisions in Section 8-1.03, "Beginning of Work," in Section 8-1.06, "Time of Completion," and in Section 8-1.07, "Liquidated Damages," of the Standard Specifications and these special provisions.

Attention is directed to “Maintaining Traffic” elsewhere in these special provisions regarding additional liquidated damages.

The Contractor shall begin work within 5 calendar days after the contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department of Transportation.

This work shall be diligently prosecuted to completion before the expiration of

**540 WORKING DAYS**

beginning at 12:01 a.m. on the **FIRST WORKING DAY AFTER CONTRACT AWARD.**

The Contractor shall pay to the State of California the sum of $850 per day, for each and every calendar day's delay in finishing the work in excess of the number of working days prescribed above. The 72 hours advance notice before beginning work as referred to in said Section 8-1.03 is changed to 24 hours advance notice for this project.

## SECTION 5. GENERAL

## SECTION 5-1. MISCELLANEOUS

### 5-1.01 LABOR NONDISCRIMINATION

Attention is directed to the following Notice that is required by Chapter 5 of Division 4 of Title 2, California Code of Regulations.

**NOTICE OF REQUIREMENT FOR NONDISCRIMINATION PROGRAM (GOV. CODE, SECTION 12990)**

Your attention is called to the "Nondiscrimination Clause", set forth in Section 7-1.01A(4), "Labor Nondiscrimination," of the Standard Specifications, which is applicable to all nonexempt state contracts and subcontracts, and to the "Standard California Nondiscrimination Construction Contract Specifications" set forth therein. The Specifications are applicable to all nonexempt state construction contracts and subcontracts of $5,000 or more.

### 5-1.02 LABOR CODE REQUIREMENTS

Section 7-1.01A(1), "Hours of Labor," of the Standard Specifications is amended to read:

**7-1.01A(1) Hours of Labor.—** Eight hours labor constitutes a legal day's work. The Contractor or any subcontractor under the Contractor shall forfeit, as a penalty to the State of California, $25 for each worker employed in the execution of the contract by the respective Contractor or subcontractor for each calendar day during which that worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of the Labor Code, and in particular, Section 1810 to Section 1815, thereof, inclusive, except that work performed by employees of Contractors in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon compensation for all hours worked in excess of 8 hours per day at not less than one and one-half times the basic rate of pay, as provided in Section 1815 thereof.

Section 7-1.01A(2), "Prevailing Wage," of the Standard Specifications is amended to read:

**7-1.01A(2) Prevailing Wage.—** The Contractor and any subcontractor under the Contractor shall comply with Labor Code Sections 1774 and 1775. Pursuant to Section 1775, the Contractor and any subcontractor under the Contractor shall forfeit to the State or political subdivision on whose behalf the contract is made or awarded a penalty of not more than fifty dollars ($50) for each calendar day, or portion thereof, for each worker paid less than the prevailing rates as determined by the Director of Industrial Relations for the work or craft in which the worker is employed for any public work done under the contract by the Contractor or by any subcontractor under the Contractor in violation of the provisions of the Labor Code and in particular, Labor Code Sections 1770 to 1780, inclusive. The amount of this forfeiture shall be determined by the Labor Commissioner and shall be based on consideration of the mistake, inadvertence, or neglect of the Contractor or subcontractor in failing to pay the correct rate of prevailing wages, or the previous record of the Contractor or subcontractor in meeting their respective prevailing wage obligations, or the willful failure by the Contractor or subcontractor to pay the correct rates of prevailing wages. A mistake, inadvertence, or neglect in failing to pay the correct rate of prevailing wages is not excusable if the Contractor or subcontractor had knowledge of the obligations under the Labor Code. In addition to the penalty and pursuant to Labor Code Section 1775, the difference between the prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by the Contractor or subcontractor. If a worker employed by a subcontractor on a public works project is not paid the general prevailing per diem wages by the subcontractor, the prime contractor of the project is not liable for the penalties described above unless the prime contractor had

knowledge of that failure of the subcontractor to pay the specified prevailing rate of wages to those workers or unless the prime contractor fails to comply with all of the following requirements:

1. The contract executed between the contractor and the subcontractor for the performance of work on the public works project shall include a copy of the provisions of Sections 1771, 1775, 1776, 1777.5, 1813, and 1815 of the Labor Code.
2. The contractor shall monitor the payment of the specified general prevailing rate of per diem wages by the subcontractor to the employees, by periodic review of the certified payroll records of the subcontractor.
3. Upon becoming aware of the subcontractor's failure to pay the specified prevailing rate of wages to the subcontractor's workers, the contractor shall diligently take corrective action to halt or rectify the failure, including, but not limited to, retaining sufficient funds due the subcontractor for work performed on the public works project.
4. Prior to making final payment to the subcontractor for work performed on the public works project, the contractor shall obtain an affidavit signed under penalty of perjury from the subcontractor that the subcontractor has paid the specified general prevailing rate of per diem wages to the subcontractor's employees on the public works project and any amounts due pursuant to Section 1813 of the Labor Code.

Pursuant to Section 1775 of the Labor Code, the Division of Labor Standards Enforcement shall notify the Contractor on a public works project within 15 days of the receipt by the Division of Labor Standards Enforcement of a complaint of the failure of a subcontractor on that public works project to pay workers the general prevailing rate of per diem wages. If the Division of Labor Standards Enforcement determines that employees of a subcontractor were not paid the general prevailing rate of per diem wages and if the Department did not retain sufficient money under the contract to pay those employees the balance of wages owed under the general prevailing rate of per diem wages, the contractor shall withhold an amount of moneys due the subcontractor sufficient to pay those employees the general prevailing rate of per diem wages if requested by the Division of Labor Standards Enforcement. The Contractor shall pay any money retained from and owed to a subcontractor upon receipt of notification by the Division of Labor Standards Enforcement that the wage complaint has been resolved. If notice of the resolution of the wage complaint has not been received by the Contractor within 180 days of the filing of a valid notice of completion or acceptance of the public works project, whichever occurs later, the Contractor shall pay all moneys retained from the subcontractor to the Department. These moneys shall be retained by the Department pending the final decision of an enforcement action.

Pursuant to the provisions of Section 1773 of the Labor Code, the Department has obtained the general prevailing rate of wages (which rate includes employer payments for health and welfare, pension, vacation, travel time, and subsistence pay as provided for in Section 1773.8 of the Labor Code, apprenticeship or other training programs authorized by Section 3093 of the Labor Code, and similar purposes) applicable to the work to be done, for straight time, overtime, Saturday, Sunday and holiday work. The holiday wage rate listed shall be applicable to all holidays recognized in the collective bargaining agreement of the particular craft, classification or type of workmen concerned. The general prevailing wage rates and any applicable changes to these wage rates are available at the Labor Compliance Office at the offices of the District Director of Transportation for the district in which the work is situated. For work situated in District 9, the wage rates are available at the Labor Compliance Office at the offices of the District Director of Transportation for District 6, located at Fresno. General prevailing wage rates are also available from the California Department of Industrial Relations' Internet Web Site at: http://www.dir.ca.gov.

The wage rates determined by the Director of Industrial Relations for the project refer to expiration dates. Prevailing wage determinations with a single asterisk after the expiration date are in effect on the date of advertisement for bids and are good for the life of the contract. Prevailing wage determinations with double asterisks after the expiration date indicate that the wage rate to be paid for work performed after this date has been determined. If work is to extend past this date, the new rate shall be paid and incorporated in the contract. The Contractor shall contact the Department of Industrial Relations as indicated in the wage rate determinations to obtain predetermined wage changes.

Pursuant to Section 1773.2 of the Labor Code, general prevailing wage rates shall be posted by the Contractor at a prominent place at the site of the work.

Changes in general prevailing wage determinations which conform to Labor Code Section 1773.6 and Title 8 California Code of Regulations Section 16204 shall apply to the project when issued by the Director of Industrial Relations at least 10 days prior to the date of the Notice to Contractors for the project.

The State will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the prevailing wage rate set forth in the contract. The possibility of wage increases is one of the elements to be considered by the Contractor in determining the bid, and will not under any circumstances be considered as the basis of a claim against the State on the contract.

**7-1.01A(2)(a) Travel and Subsistence Payments.—** Attention is directed to the requirements of Section 1773.8 of the Labor Code. The Contractor shall make travel and subsistence payments to each workman, needed to execute the work, in accordance with the requirements in Labor Code Section 1773.8.

The first and second paragraphs of Section 7-1.01A(3), "Payroll Records," of the Standard Specifications are amended to read:

**7-1.01A(3) Payroll Records.—** Attention is directed to the provisions of Labor Code Section 1776, a portion of which is quoted below. Regulations implementing Labor Code Section 1776 are located in Sections 16016 through 16019 and Sections 16207.10 through 16207.19 of Title 8, California Code of Regulations.

"1776. (a) Each contractor and subcontractor shall keep accurate payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the public work. Each payroll record shall contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:

(1) The information contained in the payroll record is true and correct.

(2) The employer has complied with the requirements of Sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.

"(b) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the contractor on the following basis:

(1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.

(2) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

(3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of the contractor.

"(c) The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the division.

"(d) A contractor or subcontractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested the records within 10 days after receipt of a written request.

"(e) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated in a manner so as to prevent disclosure of an individual's name, address, and social security number. The name and address of the contractor awarded the contract or the subcontractor performing the contract shall not be marked or obliterated.

"(f) The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.

"(g) The contractor or subcontractor shall have 10 days in which to comply subsequent to receipt of a written notice requesting the records enumerated in subdivision (a). In the event that the contractor or subcontractor fails to comply within the 10-day period, he or she shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars ($25) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. A contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section."

The penalties specified in subdivision (g) of Labor Code Section 1776 for noncompliance with the provisions of Section 1776 may be deducted from any moneys due or which may become due to the Contractor.

**5-1.03 CONTRACTOR'S LICENSING LAWS**

The third paragraph of Section 7-1.01C, "Contractor's Licensing Laws," of the Standard Specifications is amended to read:

Attention is also directed to the provisions of Public Contract Code Section 10164. In all projects where Federal funds are involved, the Contractor shall be properly licensed at the time the contract is awarded.

**5-1.04 ARBITRATION**

The last paragraph in Section 9-1.10, "Arbitration," of the Standard Specifications is amended to read.

Arbitration shall be initiated by a Complaint in Arbitration made in compliance with the requirements of said regulations. A Complaint in Arbitration by the Contractor shall be made not later than 180 days after the date of service in person or by mail on the Contractor of the final written decision by the Department on the claim.

**5-1.05 NOTICE OF POTENTIAL CLAIM**

Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications is amended to read:

**9-1.04 Notice of Potential Claim.--**The Contractor shall not be entitled to the payment of any additional compensation for any act, or failure to act, by the Engineer, including failure or refusal to issue a change order, or for the happening of any event, thing, occurrence, or other cause, unless he shall have given the Engineer due written notice of potential claim as hereinafter specified. Compliance with this Section 9-1.04 shall not be a prerequisite as to matters within the scope of the protest provisions in Section 4-1.03, "Changes," or Section 8-1.06, "Time of Completion," or the notice provisions in Section 5-1.116, "Differing Site Conditions," or Section 8-1.07, "Liquidated Damages," or Section 8-1.10, "Utility and Non-Highway Facilities," nor to any claim which is based on differences in measurements or errors of computation as to contract quantities.

The written notice of potential claim shall be submitted to the Engineer prior to the time that the Contractor performs the work giving rise to the potential claim for additional compensation, if based on an act or failure to act by the Engineer, or in all other cases within 15 days after the happening of the event, thing, occurrence, or other cause, giving rise to the potential claim.

The written notice of potential claim shall be submitted on Form CEM-6201 furnished by the Department and shall be certified with reference to the California False Claims Act, Government Code Sections 12650 - 12655. The notice shall set forth the reasons for which the Contractor believes additional compensation will or may be due and the nature of the costs involved. Unless the amount of the potential claim has been stated in the written notice, the Contractor shall, within 15 days of submitting said notice, furnish an estimate of the cost of the affected work and impacts, if any, on project completion. Said estimate of costs may be changed or updated by the Contractor when conditions have changed. When the affected work is completed, the Contractor shall submit substantiation of his actual costs. Failure to do so shall be sufficient cause for denial of any claim subsequently filed on the basis of said notice of potential claim.

It is the intention of this Section 9-1.04 that differences between the parties arising under and by virtue of the contract be brought to the attention of the Engineer at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken. The Contractor hereby agrees that he shall have no right to additional compensation for any claim that may be based on any such act, failure to act, event, thing or occurrence for which no written notice of potential claim as herein required was filed.

Should the Contractor, in connection with or subsequent to the assertion of a potential claim, request inspection and copying of documents or records in the possession of the Department that pertain to the potential claim, Contractor shall make its records of the project, as deemed by the Department to be pertinent to the potential claim, available to the Department for inspection and copying.

**5-1.06 PARTIAL PAYMENTS**

The last paragraph of Section 9-1.06, "Partial Payments," of the Standard Specifications is amended to read:

Attention is directed to the prohibitions and penalties pertaining to unlicensed contractors as provided in Business and Professions Code Sections 7028.15(a) and 7031.

**5-1.07 PAYMENT OF WITHHELD FUNDS**

Section 9-1.065, "Payment of Withheld Funds," of the Standard Specifications, is amended by adding the following after the third paragraph:

Alternatively, and subject to the approval of the Department, the payment of retentions earned may be deposited directly with a person licensed under Division 6 (commencing with Section 17000) of the Financial Code as the escrow agent. Upon written request of an escrow agent that has not been approved by the Department under subdivision (c) of Section 10263 of the Public Contract Code, the Department will provide written notice to that escrow agent within 10 business days of receipt of the request indicating the reason or reasons for not approving that escrow agent. The payments will be deposited in a trust account with a Federally chartered bank or savings association within 24 hours of receipt by the escrow agent. The Contractor shall not place any retentions with the escrow agent in excess of the coverage provided to that escrow agent pursuant to subdivision (b) of Section 17314 of the Financial Code. In all respects not inconsistent with subdivision (c) of Section 10263 of the Public Contract Code, the remaining provisions of Section 10263 of the Public Contract Code shall apply to escrow agents acting pursuant to subdivision (c) of Section 10263 of the Public Contract Code.

**5-1.08 FINAL PAYMENT AND CLAIMS**

Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications is amended to read:

**9-1.07B Final Payment and Claims.--**After acceptance by the Director, the Engineer will make a proposed final estimate in writing of the total amount payable to the Contractor, including therein an itemization of said amount, segregated as to contract item quantities, extra work and any other basis for payment, and shall also show therein all deductions made or to be made for prior payments and amounts to be kept or retained under the provisions of the contract. All prior estimates and payments shall be subject to correction in the proposed final estimate. The Contractor shall submit written approval of the proposed final estimate or a written statement of all claims arising under or by virtue of the contract so that the Engineer receives such written approval or statement of claims no later than close of business of the thirtieth day after receiving the proposed final estimate. If the thirtieth day falls on a Saturday, Sunday or legal holiday, then receipt of such written approval or statement of claims by the Engineer shall not be later than close of business of the next business day. No claim will be considered that was not included in the written statement of claims, nor will any claim be allowed as to which a notice or protest is required under the provisions in Sections 4-1.03, "Changes," 8-1.06, "Time of Completion," 8-1.07, "Liquidated Damages," 5-1.116, "Differing Site Conditions," 8-1.10, "Utility and Non-Highway Facilities," and 9-1.04, "Notice of Potential Claim," unless the Contractor has complied with the notice or protest requirements in said sections.

On the Contractor's approval, or if he files no claim within said period of 30 days, the Engineer will issue a final estimate in writing in accordance with the proposed final estimate submitted to the Contractor and within 30 days thereafter the State will pay the entire sum so found to be due. Such final estimate and payment thereon shall be conclusive and binding against both parties to the contract on all questions relating to the amount of work done and the compensation payable therefor, except as otherwise provided in Sections 9-1.03C, "Records," and 9-1.09, "Clerical Errors."

If the Contractor within said period of 30 days files claims, the Engineer will issue a semifinal estimate in accordance with the proposed final estimate submitted to the Contractor and within 30 days thereafter the State will pay the sum so found to be due. Such semifinal estimate and payment thereon shall be conclusive and binding against both parties to the contract on all questions relating to the amount of work done and the compensation payable therefor, except insofar as affected by the claims filed within the time and in the manner required hereunder and except as otherwise provided in Sections 9-1.03C, "Records," and 9-1.09, "Clerical Errors."

Claims filed by the Contractor shall be in sufficient detail to enable the Engineer to ascertain the basis and amount of said claims. If additional information or details are required by the Engineer to determine the basis and amount of said claims, the Contractor shall furnish such further information or details so that the information or details are received by the Engineer no later than the fifteenth day after receipt of the written request from the Engineer. If the fifteenth day falls on a Saturday, Sunday or legal holiday, then receipt of such information or details by the Engineer shall not be later than close of business of the next business day. Failure to submit such information and details to the Engineer within the time specified will be sufficient cause for denying the claim.

The Contractor shall keep full and complete records of the costs and additional time incurred for any work for which a claim for additional compensation is made. The Engineer or any designated claim investigator or auditor shall have access to those records and any other records as may be required by the Engineer to determine the facts or contentions involved in the claims. Failure to permit access to such records shall be sufficient cause for denying the claims.

Claims submitted by the Contractor shall be accompanied by a notarized certificate containing the following language:

Under the penalty of law for perjury or falsification and with specific reference to the California False Claims Act, Government Code Section 12650 et. seq., the undersigned,

(name)

_____ of

(title)

_____

(company)

hereby certifies that the claim for the additional compensation and time, if any, made herein for the work on this contract is a true statement of the actual costs incurred and time sought, and is fully documented and supported under the contract between parties.

Dated _____

/s/ _____

Subscribed and sworn before me this _____ day

of _____

_____

Notary Public

My Commission Expires _____

Failure to submit the notarized certificate will be sufficient cause for denying the claim.

Any claim for overhead type expenses or costs, in addition to being certified as stated above, shall be supported by an audit report of an independent Certified Public Accountant. Any such overhead claim shall also be subject to audit by the State at its discretion.

Any costs or expenses incurred by the State in reviewing or auditing any claims that are not supported by the Contractor's cost accounting or other records shall be deemed to be damages incurred by the State within the meaning of the California False Claims Act.

The District Director of the District which administers the contract will make the final determination of any claims which remain in dispute after completion of claim review by the Engineer. A board or person designated by said District Director will review such claims and make a written recommendation thereon to the District Director. The Contractor may meet with the review board or person to make a presentation in support of such claims.

Upon final determination of the claims, the Engineer will then make and issue his final estimate in writing and within 30 days thereafter the State will pay the entire sum, if any, found due thereon. Such final estimate shall be conclusive and binding against both parties to the contract on all questions relating to the amount of work done and the compensation payable therefor, except as otherwise provided in Sections 9-1.03C, "Records," and 9-1.09, "Clerical Errors."

**5-1.09 INTEREST ON PAYMENTS**

Interest shall be payable on progress payments, payments after acceptance, final payments, extra work payments and claim payments as follows:

1. Unpaid progress payments, payment after acceptance and final payments shall begin to accrue interest 30 days after the Engineer prepares the payment estimate.
2. Unpaid extra work bills shall begin to accrue interest 30 days after preparation of the first pay estimate following the receipt of a properly submitted and undisputed extra work bill. To be properly submitted, the bill must be submitted within 7 days of the performance of the extra work and in accordance with the requirements of Section 9-1.03C, "Records," and Section 9-1.06, "Partial Payments," of the Standard Specifications. An undisputed extra work bill not submitted within 7 days of performance of the extra work will begin to accrue interest 30 days after the preparation of the second pay estimate following submittal of the bill.
3. The rate of interest payable for unpaid progress payments, payments after acceptance, final payments and extra work payments shall be 10 percent per annum.
4. The rate of interest payable on a claim, protest or dispute ultimately allowed under this contract shall be 6 percent per annum. Interest shall begin to accrue 61 days after the Contractor submits to the Engineer information in sufficient detail to enable the Engineer to ascertain the basis and amount of said claim, protest or dispute.

The rate of interest payable on any award in arbitration shall be 6 percent per annum if allowed under the provisions of Civil Code Section 3289.

**5-1.10 PUBLIC SAFETY**

The Contractor shall provide for the safety of traffic and the public in accordance with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications and these special provisions.

The Contractor shall install temporary railing (Type K) between any lane carrying public traffic and any excavation, obstacle, or storage area when the following conditions exist:

(1) Excavations.--Any excavation, the near edge of which is 12 feet or less from the edge of the lane, except:

(a) Excavations covered with sheet steel or concrete covers of adequate thickness to prevent accidental entry by traffic or the public.
(b) Excavations less than one foot deep.
(c) Trenches less than one foot wide for irrigation pipe or electrical conduit, or excavations less than one foot in diameter.
(d) Excavations parallel to the lane for the purpose of pavement widening or reconstruction.
(e) Excavations in side slopes, where the slope is steeper than 4:1.
(f) Excavations protected by existing barrier or railing.

(2) Temporarily Unprotected Permanent Obstacles.--Whenever the work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and the Contractor elects to install the obstacle prior to installing the protective system; or whenever the Contractor, for his convenience and with permission of the Engineer, removes a portion of an existing protective railing at an obstacle and does not replace such railing complete in place during the same day.

(3) Storage Areas.--Whenever material or equipment is stored within 12 feet of the lane and such storage is not otherwise prohibited by the specifications.

The approach end of temporary railing (Type K), installed in accordance with the requirements in this section "Public Safety" and in Section 7-1.09, "Public Safety," of the Standard Specifications shall be offset a minimum of 15 feet from the edge of the traffic lane open to public traffic. The temporary railing shall be installed on a skew toward the edge of the traffic lane of not more than one foot transversely to 10 feet longitudinally with respect to the edge of the traffic lane. If the 15-foot minimum offset cannot be achieved, the temporary railing shall be installed on the 10 to 1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules shall be installed at the approach end of the temporary railing.

Temporary railing (Type K) shall conform to the provisions in Section 12-3.08, "Temporary Railing (Type K)," of the Standard Specifications. Temporary railing (Type K), conforming to the details shown on 1995 Standard Plan T3 or 1997 Standard Plan T3, may be used. Temporary railing (Type K) fabricated prior to January 1, 1993, and conforming to 1988 Standard Plan B11-30 may be used, provided the fabrication date is printed on the required Certificate of Compliance.

The fourteenth paragraph of Section 12-3.08, "Temporary Railing (Type K)," of the Standard Specifications is amended to read:

Each rail unit placed within 10 feet of a traffic lane shall have a reflector installed on top of the rail as directed by the Engineer. A Type P marker panel shall also be installed at each end of railing installed adjacent to a two-lane, two-way highway and at the end facing traffic of railing installed adjacent to a one-way roadbed. If the railing is placed on a skew, the marker shall be installed at the end of the skew nearest the traveled way. Type P marker panels shall conform to the provisions in Section 82, "Markers and Delineators," except that the Contractor shall furnish the marker panels.

Reflectors on temporary railing (Type K) shall conform to the provisions in "Prequalified and Tested Signing and Delineation Materials," of these special provisions.

Temporary crash cushion modules shall conform to the provisions in "Temporary Crash Cushion Module" elsewhere in these special provisions.

Except for installing, maintaining and removing traffic control devices, whenever work is performed or equipment is operated in the following work areas the Contractor shall close the adjacent traffic lane unless otherwise provided in the specifications:

| Approach speed of public traffic (Posted Limit) (Miles Per Hour) | Work Areas |
|---|---|
| Over 45 | Within 6 feet of a traffic lane but not on a traffic lane. |
| 35 to 45 | Within 3 feet of a traffic lane but not on a traffic lane. |

The lane closure provisions of this section shall not apply if the work area is protected by permanent or temporary railing or barrier.

When traffic cones or delineators are used to delineate a temporary edge of traffic lane, the line of cones or delineators shall be considered to be the edge of traffic lane, however, the Contractor shall not reduce the width of an existing lane to less than 10 feet without written approval from the Engineer.

When work is not in progress on a trench or other excavation that required closure of an adjacent lane, the traffic cones or portable delineators used for the lane closure shall be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators shall be not more than the spacing used for the lane closure.

Suspended loads or equipment shall not be moved nor positioned over public traffic or pedestrians.

Full compensation for conforming to the requirements in this section "Public Safety," including furnishing and installing temporary railing (Type K) and temporary crash cushion modules, shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

### 5-1.11 SURFACE MINING AND RECLAMATION ACT

Attention is directed to the Surface Mining and Reclamation Act of 1975, commencing in Public Resources Code, Mining and Geology, Section 2710, which establishes regulations pertinent to surface mining operations.

Material from mining operations furnished for this project shall only come from permitted sites in compliance with the Surface Mining and Reclamation Act of 1975.

The requirements of this section shall apply to all materials furnished for the project, except for acquisition of materials in conformance with Section 4-1.05, "Use of Materials Found on the Work," of the Standard Specifications.

### 5-1.12 REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES

When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos or a hazardous substance as defined in Section 25914.1 of the Health and Safety Code, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe, and shall immediately cease work in the affected area and report the condition to the Engineer in writing.

In accordance with Section 25914.1 of the Health and Safety Code, all such removal of asbestos or hazardous substances including any exploratory work to identify and determine the extent of such asbestos or hazardous substance will be performed by separate contract.

If delay of work in the area delays the current controlling operation, the delay will be considered a right of way delay and the Contractor will be compensated for such delay as provided in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

### 5-1.13 FINAL PAY QUANTITIES

Section 9-1.015, "Final Pay Quantities," of the Standard Specifications is amended to read:

**9-1.015 Final Pay Items.—**When an item of work is designated as (F) or (S-F) in the Engineer's Estimate, the estimated quantity for that item of work shall be the final pay quantity, unless the dimensions of any portion of that item are revised by the Engineer, or the item or any portion of the item is eliminated. If the dimensions of any portion of the item are revised, and the revisions result in an increase or decrease in the estimated quantity of that item of work, the final pay quantity for the item will be revised in the amount represented by the changes in the dimensions, except as otherwise provided for minor structures in Section 51-1.22, "Measurement." If a final pay item is eliminated, the estimated quantity for the item will be eliminated. If a portion of a final pay item is eliminated, the final pay quantity will be revised in the amount represented by the eliminated portion of the item of work.

The estimated quantity for each item of work designated as (F) or (S-F) in the Engineer's Estimate shall be considered as approximate only, and no guarantee is made that the quantity which can be determined by computations, based on the details and dimensions shown on the plans, will equal the estimated quantity. No allowance will be made in the event that the quantity based on computations does not equal the estimated quantity.

In case of discrepancy between the quantity shown in the Engineer's Estimate for a final pay item and the quantity or summation of quantities for the same item shown on the plans, payment will be based on the quantity shown in the Engineer's Estimate.

**5-1.14 YEAR 2000 COMPLIANCE**

This contract is subject to Year 2000 Compliance for automated devices in the State of California. Year 2000 compliance is defined as follows:

> Year 2000 compliance for automated devices in the State of California is achieved when embedded functions have or create no logical or mathematical inconsistencies when dealing with dates prior to and beyond 1999. The year 2000 is recognized and processed as a leap year. The product must also operate accurately in the manner in which it was intended for date operation without requiring manual intervention.

The Contractor shall provide the Engineer a Certificate of Compliance from the manufacturer in accordance with the provisions of Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for all automated devices furnished for the project.

**5-1.15 DVBE RECORDS**

The Contractor shall maintain records of all subcontracts entered into with certified DVBE subcontractors and records of materials purchased from certified DVBE suppliers. Such records shall show the name and business address of each DVBE subcontractor or vendor and the total dollar amount actually paid each DVBE subcontractor or vendor.

Upon completion of the contract, a summary of these records shall be prepared on Form CEM-2402 and certified correct by the Contractor or his authorized representative, and shall be furnished to the Engineer.

**5-1.155 PERFORMANCE OF DVBE SUBCONTRACTORS AND SUPPLIERS**

The DVBEs listed by the Contractor in response to the requirements in Section 2-1.04, "Submission of DVBE Information," in these special provisions, which are determined by the Department to be certified DVBEs, shall perform the work and supply the materials for which they are listed unless the Contractor has received prior written authorization to perform the work with other forces or to obtain the materials from other sources.

Authorization to utilize other forces or sources of materials may be requested for the following reasons:

> (1) The listed DVBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract, when such written contract, based upon the general terms, conditions, plans and specifications for the project, or on the terms of such subcontractor's or supplier's written bid, is presented by the Contractor.
>
> (2) The listed DVBE becomes bankrupt or insolvent.
>
> (3) The listed DVBE fails or refuses to perform his subcontract or furnish the listed materials.
>
> (4) The Contractor stipulated that a bond was a condition of executing a subcontract and the listed DVBE subcontractor fails or refuses to meet the bond requirements of the Contractor.
>
> (5) The work performed by the listed subcontractor is substantially unsatisfactory and is not in substantial accordance with the plans and specifications, or the subcontractor is substantially delaying or disrupting the progress of the work.
>
> (6) The listed DVBE subcontractor is not licensed pursuant to the Contractors License Law.
>
> (7) It would be in the best interest of the State.

The Contractor shall not be entitled to any payment for such work or material unless it is performed or supplied by the listed DVBE or by other forces (including those of the Contractor) pursuant to prior written authorization of the Engineer.

**5-1.16 SUBCONTRACTING**

Attention is directed to the provisions in Section 8-1.01, "Subcontracting," of the Standard Specifications, Section 2, "Proposal Requirements and Conditions," Section 2-1.04, "Submission of DVBE Information," and Section 3, "Award and Execution of Contract," elsewhere in these special provisions and these special provisions.

The first sentence in the third paragraph of said Section 8-1.01 is amended to read:

> The Contractor shall perform with his own organization contract work amounting to not less than 30 percent of the original total contract price, except that any designated "Specialty Items" may be performed by subcontract and the amount of such "Specialty Items" so performed may be deducted from the original total contract price before computing the amount of work required to be performed by the Contractor with his own organization.

The second sentence in the third paragraph of said Section 8-1.01 is amended to read:

> When items of work in the Engineer's Estimate are preceded by the letters (S) or (S-F), said items are designated as "Specialty Items."

The DVBE information furnished under Section 2-1.04, "Submission of DVBE Information," of these special provisions is in addition to the subcontractor information required to be furnished under said Section 8-1.01, "Subcontracting," and Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications.

Section 10115 of the Public Contract Code requires the Department to implement provisions to establish a goal for Disabled Veteran Business Enterprise (DVBE) participation in highway contracts that are state funded. As a part of this requirement:

1. No substitution of a DVBE subcontractor shall be made at any time without the written consent of the Department, and
2. If a DVBE subcontractor is unable to perform successfully and is to be replaced, the Contractor will be required to make good faith efforts to replace the original DVBE subcontractor with another DVBE subcontractor.

The requirement in Section 2-1.02, "Disabled Veteran Business Enterprise (DVBE)," of these special provisions that DVBEs must be certified on the date bids are opened does not apply to DVBE substitutions after award of the contract.

**5-1.17 PARTNERING**

The State will promote the formation of a "Partnering" relationship with the Contractor in order to effectively complete the contract to the benefit of both parties. The purpose of this relationship will be to maintain cooperative communication and mutually resolve conflicts at the lowest possible management level.

The Contractor may request the formation of such a "Partnering" relationship by submitting a request in writing to the Engineer after approval of the contract. If the Contractor's request for "Partnering" is approved by the Engineer, scheduling of a "Partnering" workshop, selecting the "Partnering" facilitator and workshop site, and other administrative details shall be as agreed to by both parties.

The costs involved in providing a facilitator and a workshop site will be borne equally by the State and the Contractor. The Contractor shall pay all compensation for the wages and expenses of the facilitator, and of the expenses for obtaining the workshop site. The State's share of such costs will be reimbursed to the Contractor in a change order written by the Engineer. Markups will not be added. All other costs associated with the "Partnering" relationship will be borne separately by the party incurring the costs.

The establishment of a "Partnering" relationship will not change or modify the terms and conditions of the contract and will not relieve either party of the legal requirements of the contract.

**5-1.18 DISPUTES REVIEW BOARD**

To assist in the resolution of disputes or potential claims arising out of the work of this project, a Disputes Review Board, hereinafter referred to as the "DRB", shall be established by the Engineer and Contractor cooperatively upon approval of the contract. The DRB is intended to assist the contract administrative claims resolution process as set forth in the provisions of Section 9-1.04, "Notice of Potential Claim," and Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications, as amended elsewhere in these special provisions. The DRB shall not be considered to serve as a substitute for any requirements in the specifications in regard to filing of potential claims. The requirements and procedures established in this special provision shall be considered as an essential prerequisite to filing a claim, for arbitration or for litigation prior or subsequent to project completion.

The DRB shall be utilized when dispute or potential claim resolution at the job level is unsuccessful. The DRB shall function until the day of acceptance of the contract, at which time the work of the DRB will cease except for completion of unfinished dispute hearings and reports. After acceptance of the contract any disputes or potential claims that the Contractor wants to pursue that have not been settled, shall be stated or restated, by the Contractor, in response to the Proposed Final Estimate within the time limits provided in Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications, as amended elsewhere in these special provisions. The State will review those claims in accordance with Section 9-1.07B, of the Standard Specifications, as amended. Following the completion of the State's administrative claims procedure, the Contractor may resort to arbitration as provided in Section 9-1.10, "Arbitration," of the Standard Specifications.

Disputes, as used in this section, shall include all differences of opinion, properly noticed as provided hereinafter, between the State and Contractor on matters related to the work and other subjects considered by the State or Contractor, or by both, to be of concern to the DRB on this project, except matters relating to Contractor, subcontractor or supplier claims not actionable against the State as specified in these special provisions. Whenever the term "dispute" or "disputes" is used herein, it shall be deemed to include potential claims as well as disputes.

The DRB shall serve as an advisory body to assist in the resolution of disputes between the State and the Contractor, hereinafter referred to as the "parties". The DRB shall consider disputes referred to it, and furnish written reports containing findings and recommendations pertaining to those disputes, to the parties to aid in resolution of the differences between them. DRB findings and recommendations are not binding on the parties.

The DRB shall consist of one member selected by the State, one member selected by the Contractor, and a third member selected by the first two members and approved by both the State and the Contractor. The third member shall act as DRB Chairperson.

The first two DRB members shall select a third DRB member subject to the mutual approval of the parties, or may mutually concur on a list of potentially acceptable third DRB members and submit the list to the parties for final selection and approval of the third member. The goal in selection of the third member is to complement the professional experience of the first two members, and to provide leadership for the DRB's activities.

No DRB member shall have prior direct involvement in this contract, and no member shall have a financial interest in this contract or the parties thereto, within a period of 6 months prior to award of this contract, or during the contract, except as follows:

1. Compensation for services on this DRB.
2. Ownership interest in a party or parties, documented by the prospective DRB member, that has been reviewed and determined in writing by the State to be sufficiently insignificant to render the prospective member acceptable to the State.
3. Service as a member of other Disputes Review Boards on other contracts.
4. Retirement payments or pensions received from a party that are not tied to, dependent on or affected by the net worth of the party.
5. The above provisions apply to any party having a financial interest in this contract; including but not limited to contractors, subcontractors, suppliers, consultants, and legal and business services.

DRB members shall be especially knowledgeable in the type of construction and contract documents potentially anticipated by the contract, and shall discharge their responsibilities impartially and as an independent body considering the facts and circumstances related to the matters under consideration, applicable laws and regulations, and the pertinent provisions of the contract.

The State and the Contractor shall select their respective DRB members, in accordance with the terms and conditions of the Disputes Review Board Agreement and these provisions, within 45 days of the approval of the contract. Each party shall provide written notification to the other of the name of their selected DRB member along with the prospective member's written disclosure statement.

Before their appointments are final, the first two prospective DRB members shall submit complete disclosure statements to both the State and the Contractor. The statement shall include a resume of the prospective member's experience, together with a declaration describing all past, present and anticipated or planned future relationships, including indirect relationships through the prospective member's primary or full-time employer, to this project and with all parties involved in this construction contract; including, but not limited to, any relevant subcontractors or suppliers to the parties, the parties' principals or the parties' counsel. The DRB members shall also include a full disclosure of close professional or personal relationships with all key members of all parties to the contract. Either the Contractor or the State may object to the others nominee and that person will not be selected for the DRB. No reason need be given for the first objection. Objections to subsequent nominees must be based on a specific breech or violation of nominee responsibilities under this specification. A different person shall then be nominated within 14 Days. The third DRB member shall supply a full disclosure statement to the first two DRB members and to the parties prior to appointment. Either party may reject any of the three prospective DRB members who fail to fully comply with all required employment and financial disclosure conditions of DRB membership as described in the Disputes Review Board Agreement and elsewhere herein. A copy of the Disputes Review Board Agreement is included in this special provision.

The first duty of the State and Contractor selected members of the DRB is to select and recommend prospective third member(s) to the parties for final selection and approval. The first two DRB members shall proceed with the selection of the third DRB member immediately upon receiving written notification from the State of their selection, and shall provide their recommendation simultaneously to the parties within 21 days of the notification.

An impasse shall be considered to have been reached if the parties are unable to approve a third member within 14 days of receipt of the recommendation of the first two DRB members, or if the first two members are unable to agree upon a recommendation within the 14 day time limit allowed in the preceding paragraph. In the event of an impasse in selection of the third DRB member, the State and the Contractor shall each propose three candidates for the third position. The parties shall select all candidates proposed under this paragraph from the current list of arbitrators certified by the Public Works Contract Arbitration Committee created by Article 7.2 (commencing with Section 10245) of the State Contract Act. The first two DRB members shall then select one of the 6 proposed candidates in a blind draw.

The Contractor, the State, and all three members of the DRB shall complete and adhere to the Disputes Review Board Agreement in administration of this DRB within 14 days of the parties’ concurrence in the selection of the third member. The State authorizes the Engineer to execute and administer the terms of the Agreement. The person(s) designated by the Contractor as authorized to execute Contract Change Orders shall be authorized to execute and administer the terms of this agreement, or to delegate the authority in writing. The operation of the DRB shall be in conformance with the terms of the Disputes Review Board Agreement.

The State and the Contractor shall bear the costs and expenses of the DRB equally. Each DRB board member shall be compensated at an agreed rate of $1,000.00 per day if time spent per meeting, including all on-site time plus one hour of travel time, is greater than four hours. Each DRB board member shall be compensated at an agreed rate of $600.00 per day if time spent per meeting, including all on-site time plus one hour of travel time, is less than or equal to four hours. The agreed rates shall be considered full compensation for on-site time, travel expenses, transportation, lodging, time for travel and incidentals for each day, or portion thereof, that the DRB member is at an authorized DRB meeting. No additional compensation will be made for time spent by DRB members in review and research activities outside the official DRB meetings unless that time, (such as time spent evaluating and preparing recommendations on specific issues presented to the DRB), has been specifically agreed to in advance by the State and Contractor. Time away from the project, that has been specifically agreed to in advance by the parties, will be compensated at an agreed rate of $100.00 per hour. The agreed amount of $100.00 per hour shall include all incidentals including any expenses for telephone, fax and computer services. Members serving on more than one DRB, regardless of the number of meetings per day, shall not be paid more than the all inclusive rate per day or rate per hour for an individual project. The State will provide, at no cost to the Contractor, administrative services such as conference facilities and secretarial services to the DRB. These special provisions and the Disputes Review Board Agreement state provisions for compensation and expenses of the DRB. All DRB members shall be compensated at the same daily and hourly rate. The Contractor shall make direct payments to each DRB member for their participation in authorized meetings and approved hourly rate charges from invoices submitted by each DRB member. The State will reimburse the Contractor for its share of the costs. There will be no markups applied to any expenses connected with the DRB, either by the DRB members or by the Contractor when requesting payment of the State's share of DRB expenses.

Service of a DRB member may be terminated at any time with not less than 14 days notice as follows:

1. The State may terminate service of the State appointed member.
2. The Contractor may terminate service of the Contractor appointed member.
3. Upon the written recommendation of the State and Contractor members for the removal of the third member.
4. Upon resignation of a member.

When a member of the DRB is replaced, the replacement member shall be appointed in the same manner as the replaced member was appointed. The appointment of a replacement DRB member will begin promptly upon determination of the need for replacement and shall be completed within 14 days. Changes in either of the DRB members chosen by the two parties will not require re-selection of the third member, unless both parties agree to such re-selection in writing. The Disputes Review Board Agreement shall be amended to reflect the change of a DRB member.

The following procedure shall be used for dispute resolution:

1. If the Contractor objects to any decision, act or order of the Engineer, the Contractor shall give written notice of potential claim as specified in Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications, as amended elsewhere in these special provisions, including provision of applicable cost documentation; or file written protests or notices pursuant to Sections 4-1.03A, "Procedure and Protest", 8-1.06, "Time of Completion", 8-1.07, "Liquidated Damages", or 8-1.10, "Utility and Non-Highway Facilities" of the Standard Specifications.
2. The Engineer will respond, in writing, to the Contractor's written protest or notice within 14 days of receipt of the written protest or notice.
3. Within 14 days after receipt of the Engineer's written response, the Contractor shall, if the Contractor still objects, file a written reply with the Engineer, stating clearly and in detail the basis of the objection.
4. Following the Contractor's objection to the Engineer's decision, the Contractor shall refer the dispute to the DRB if the Contractor wishes to further pursue the objection to the Engineer’s decision. The Contractor shall make the referral in writing to the DRB, simultaneously copied to the State, within 21 days after receipt of the written reply from the Engineer. The written dispute referral shall describe the disputed matter in individual discrete segments so that it will be clear to both parties and the DRB what discrete elements of the dispute have been resolved, and which remain unresolved.
5. The Contractor, by failing to submit the written notice of referral of the matter to the DRB within 21 days after receipt of the State’s written reply, waives any future claims on the matter in contention.
6. The Contractor and the State shall each be afforded an opportunity to be present and to be heard by the DRB, and to offer evidence. Either party furnishing any written evidence or documentation to the DRB must furnish copies of such information to the other party a minimum of 14 days prior to the date the DRB is scheduled to convene the hearing for the dispute. Either party shall produce such additional evidence as the DRB may deem necessary to reach an understanding and determination of the dispute. The party furnishing additional evidence shall furnish copies of such additional evidence to the other party at the same time the evidence is provided to the DRB. The DRB will not consider any evidence not furnished in accordance with the terms specified herein.

7. The DRB shall furnish a report, containing findings and recommendations as described in the Disputes Review Board Agreement, in writing to both the State and the Contractor. The DRB shall complete its reports, including minority opinion if any, and submit them to the parties within 30 days of the DRB hearing, except that time extensions may be granted at the request of the DRB with the written concurrence of both parties. The report shall include the facts and circumstances related to the matters under consideration, applicable laws and regulations, the pertinent provisions of the Contract and the actual costs and time incurred as shown on the Contractor's cost accounting records.
8. Within 30 days after receiving the DRB's report, both the State and the Contractor shall respond to the DRB in writing signifying that the dispute is either resolved or remains unresolved. Failure to provide the written response within the time specified, or a written rejection of the DRB's recommendation presented in the report by either party, shall conclusively indicate that the party(s) failing to respond accepts the DRB recommendation. Immediately after responses have been received by both parties, the DRB will provide copies of both responses to the parties simultaneously. Either party may request clarification of elements of the DRB's report from the DRB prior to responding to the report. The DRB will consider any clarification request only if submitted within 10 days of receipt of the DRB's report, and if submitted simultaneously in writing to both the DRB and the other party. Each party may submit only one request for clarification for any individual DRB report. The DRB shall respond, in writing, to requests for clarification within 10 days of receipt of such requests.
9. The DRB's recommendations, stated in the DRB's reports, are not binding on either party. Either party may seek a reconsideration of a recommendation of the DRB. The DRB shall only grant a reconsideration based upon submission of new evidence and if the request is submitted within the 30 day time limit specified for response to the DRB's written report. Each party may submit only one request for reconsideration regarding any individual DRB recommendation.
10. If the State and the Contractor are able to resolve their dispute with the aid of the DRB's report, the State and Contractor shall promptly accept and implement the recommendations of the DRB.
11. The State or the Contractor shall not call members who served on the DRB for this contract as witnesses in arbitration proceedings which may arise from this contract, and all documents created by the DRB shall be inadmissible as evidence in subsequent arbitration proceedings, except the DRB’s final written reports on each issue brought before it..
12. The State and Contractor shall jointly indemnify and hold harmless the DRB members from and against all claims, damages, losses, and expenses, including but not limited to attorney's fees, arising out of and resulting from the findings and recommendations of the DRB.
13. The DRB members shall have no claim against the State or the Contractor, or both, from any claimed harm arising out of the parties' evaluations of the DRB's report.

**Disputes Involving Subcontractor Claims.—**For purposes of this section, a "subcontractor claim" shall include any claim by a subcontractor (including also any pass through claims by a lower tier subcontractor or supplier) against the Contractor that is actionable by the Contractor against the Department which arises from the work, services, or materials provided or to be provided in connection with the contract. If the Contractor determines to pursue a dispute against the Department that includes a subcontractor claim, the dispute shall be processed and resolved in accordance with these special provisions and in accordance with the following:

1. The Contractor shall identify clearly in all submissions pursuant to this section, that portion of the dispute that involves a subcontractor claim or claims.
2. The Contractor shall include, as part of its submission pursuant to Step 4 above, a certification (False Claims Act Certification) by the subcontractor's or supplier's officer, partner, or authorized representative with authority to bind the subcontractor and with direct knowledge of the facts underlying the subcontractor claim. The Contractor also shall submit a certification that the subcontractor claim is acknowledged and forwarded by the Contractor. The form for these certifications are available from the Engineer.
3. At any DRB meeting on a dispute that includes one or more subcontractor claims, the Contractor shall require that each subcontractor that is involved in the dispute have present an authorized representative with actual knowledge of the facts underlying the subcontractor claim to assist in presenting the subcontractor claim and to answer questions raised by the DRB members or the Department's representatives.
4. Failure by the Contractor to declare a subcontractor claim on behalf of its subcontractor (including lower tier subcontractors' and suppliers' pass through claims) at the time of submission of the Contractor's claims, as provided hereunder, shall constitute a release of the Department by the Contractor on account of such subcontractor claim.
5. The Contractor shall include in all subcontracts under this contract that subcontractors and suppliers of any tier (a) agree to submit subcontractor claims to the Contractor in a proper form and in sufficient time to allow processing by the Contractor in accordance with the Dispute Review Board resolution specifications; (b) agree to be bound by the terms of the Dispute Review Board provisions to the extent applicable to subcontractor

claims; (c) agree that, to the extent a subcontractor claim is involved, completion of all steps required under these Dispute Review Board special provisions shall be a condition precedent to pursuit by the subcontractor of any other remedies permitted by law, including without limitation of a lawsuit against the Contractor; and (d) agree that the existence of a dispute resolution process for disputes involving subcontractor claims shall not be deemed to create any claim, right, or cause of action by any subcontractor or supplier against the Department.

Notwithstanding the foregoing, this Dispute Review Board special provision shall not apply to, and the DRB shall not have the authority to consider, any subcontractor claim between the subcontractor(s) or supplier(s) and the Contractor that is not actionable by the Contractor against the Department.

A copy of the "Disputes Review Board Agreement" to be executed by the Contractor, State and the three DRB members after approval of the contract follows:

**DISPUTES REVIEW BOARD AGREEMENT**

_____
**(Contract Identification)**

**Contract No. _____**

**THIS DISPUTES REVIEW BOARD AGREEMENT, hereinafter called "AGREEMENT"**, made and entered into this _____ day of _____, _____, between the State of California, acting through the California Department of Transportation and the Director of Transportation, hereinafter called the "STATE"; _____ hereinafter called the "CONTRACTOR"; and the Disputes Review Board, hereinafter called the "DRB" consisting of the following members:

_____ ,
(Contractor Appointee)

_____ ,
(State Appointee)

and _____
(Third Person)

WITNESSETH, that

WHEREAS, the STATE and the CONTRACTOR, hereinafter called the "parties", are now engaged in the construction on the State Highway project referenced above; and

WHEREAS the special provisions for the above referenced contract provides for the establishment and operation of the DRB to assist in resolving disputes; and

WHEREAS, the DRB is composed of three members, one selected by the STATE, one selected by the CONTRACTOR, and the third member selected by the other two members and approved by the parties;

NOW THEREFORE, in consideration of the terms, conditions, covenants, and performance contained herein, or attached and incorporated and made a part hereof, the STATE, the CONTRACTOR, and the DRB members hereto agree as follows:

**I**
**DESCRIPTION OF WORK**

To assist in the resolution of disputes between the parties, the contract provides for the establishment and the operation of the DRB. The intent of the DRB is to fairly and impartially consider disputes placed before it and provide written recommendations for resolution of these disputes to both parties. The members of this DRB shall perform the services necessary to participate in the DRB's actions as designated in Section II, Scope of Work.

## II
## SCOPE OF WORK

The scope of work of the DRB includes, but is not limited to, the following:

### A. Objective

The principal objective of the DRB is to assist in the timely resolution of disputes between the parties arising from performance of this contract. It is not intended for either party to default on their normal responsibility to amicably and fairly settle their differences by indiscriminately assigning them to the DRB. It is intended that the mere existence of the DRB will encourage the parties to resolve disputes without resorting to this review procedure. But when a dispute which is serious enough to warrant the DRB's review does develop, the process for prompt and efficient action will be in place.

### B. Procedures

The DRB shall render written reports on disputes between the parties arising from the construction contract. Prior to consideration of a dispute, the DRB shall establish rules and regulations that will govern the conduct of its business and reporting procedures in accordance with the requirements of the contract and the terms of this AGREEMENT. DRB recommendations, resulting from its consideration of a dispute, shall be furnished in writing to both parties. The recommendations shall be based on the pertinent contract provisions, and the facts and circumstances involved in the dispute. The recommendations shall find one responsible party in a dispute; shared or “jury” determinations shall not be rendered.

The DRB shall refrain from officially giving any advice or consulting services to anyone involved in the contract. The individual members shall act in a completely independent manner and while serving as members of the DRB shall have no consulting business connections with either party or its principals or attorneys or any other affiliates (subcontractors, suppliers, etc.) who have a beneficial interest in the contract.

During scheduled meetings of the DRB as well as during dispute hearings, DRB members shall refrain from expressing opinions on the merits of statements on matters under dispute or potential dispute. Opinions of DRB members expressed in private sessions shall be kept strictly confidential. Individual DRB members shall not meet with, or discuss contract issues with individual parties, except as directed by the DRB Chairperson. Any such discussions or meetings shall be disclosed to both parties. Any other discussions regarding the project between the DRB members and the parties shall be in the presence of all three members and both parties. Individual DRB members shall not undertake independent investigations of any kind pertaining to disputes or potential disputes, except with the knowledge of both parties and as expressly directed by the DRB Chairperson.

### C. Construction Site Visits, Progress Meetings and Field Inspections

The DRB members shall visit the project site and meet with representatives of the parties to keep abreast of construction activities and to develop familiarity with the work in progress. All scheduled progress meetings shall be held at or near the job site. The DRB shall meet at least once at the start of the project, and at least once every six months thereafter. The frequency, exact time, and duration of additional site visits and progress meetings shall be as recommended by the DRB and approved by the parties consistent with the construction activities or matters under consideration and dispute. Each meeting shall consist of a round table discussion and a field inspection of the work being performed on the contract, if necessary. Each meeting shall be attended by representatives of both parties. The agenda shall generally be as follows:

1. Meeting opened by the DRB Chairperson.
2. Remarks by the STATE's representative.
3. A description by the CONTRACTOR's representative of work accomplished since the last meeting; the current schedule status of the work; and a forecast for the coming period.
4. An outline by the CONTRACTOR's representative of potential problems and a description of proposed solutions.
5. An outline by the STATE's representative of the status of the work as the STATE views it.
6. A brief description by the CONTRACTOR's or STATE's representative of potential claims or disputes which have surfaced since the last meeting.
7. A summary by the STATE's representative, the CONTRACTOR's representative, or the DRB of the status of past disputes and claims.

The STATE's representative will prepare minutes of all regular meetings and circulate them for revision and approval by all concerned.

The field inspection shall cover all active segments of the work, the DRB being accompanied by both parties' representatives. The field inspection may be waived upon mutual agreement of the parties.

**D. DRB Consideration and Handling of Disputes**

Upon receipt by the DRB of a written referral of a dispute, the DRB shall convene to review and consider the dispute. The DRB shall determine the time and location of DRB hearings, with due consideration for the needs and preferences of the parties while recognizing the paramount importance of speedy resolution of issues. If the matter is not urgent, it may be scheduled for the time of the next scheduled DRB visit to the project. For an urgent matter, and upon the request of either party, the DRB shall meet at its earliest convenience.

Normally, hearings shall be conducted at or near the project site. However, any location which would be more convenient and still provide all required facilities and access to necessary documentation shall be satisfactory.

Both parties shall be given the opportunity to present their evidence at these hearings. It is expressly understood that the DRB members are to act impartially and independently in the consideration of the contract provisions, and the facts and conditions surrounding any dispute presented by either party, and that the recommendations concerning any such dispute are advisory and nonbinding on the parties.

The DRB may request that written documentation and arguments from both parties be sent to each DRB member, through the DRB Chairperson, for review before the hearing begins. A party furnishing any written documentation to the DRB shall furnish copies of such information to the other party at the same time that such information is supplied to the DRB.

DRB hearings shall be informal. There shall be no testimony under oath or cross-examination. There shall be no reporting of the procedures by a shorthand reporter or by any electronic means. Documents and verbal statements shall be received by the DRB in accordance with acceptance standards established by the DRB. Said standards need not comply with prescribed legal laws of evidence.

The third DRB member shall act as Chairperson for dispute hearings and all other DRB activities. The parties shall have a representative at all hearings. Failure to attend a duly noticed meeting by either of the parties shall be conclusively considered by the DRB as indication that the non-attending party considers any written submittals as their entire and complete argument. The claimant shall discuss the dispute, followed by the other party. Each party shall then be allowed one or more rebuttals until all aspects of the dispute are thoroughly covered. DRB members may ask questions, seek clarification, or request further data from either of the parties. The DRB may request from either party documents or information that would assist the DRB in making its findings and recommendations including, but not limited to, documents used by the CONTRACTOR in preparing the bid for the project. A refusal by a party to provide information requested by the DRB may be considered by the DRB as an indication that the requested material would tend to disprove that party's position. Claims shall not necessarily be computed by merely subtracting bid price from the total cost of the affected work. However, if any claims are based on the "total cost method", then, to be considered by the DRB, they shall be supported by evidence furnished by the CONTRACTOR that (1) the nature of the dispute(s) makes it impossible or impracticable to determine cost impacts with a reasonable degree of accuracy, (2) the CONTRACTOR's bid estimate was realistic, (3) the CONTRACTOR's actual costs were reasonable, and (4) the CONTRACTOR was not responsible for the added expenses. As to any claims based on the CONTRACTOR's field or home office accounting records, those claims shall be supported by an audit report of an independent Certified Public Accountant unless the contract includes special provisions that provide for an alternative method to calculate unabsorbed home office overhead. Any of those claims shall also be subject to audit by the DRB with the concurrence of the parties. In large or complex cases, additional hearings may be necessary in order to consider all the evidence presented by both parties. All involved parties shall maintain the confidentiality of all documents and information, as provided in this AGREEMENT.

During dispute hearings, no DRB member shall express an opinion concerning the merit of any facet of the case. All DRB deliberations shall be conducted in private, with all interim individual views kept strictly confidential.

After hearings are concluded, the DRB shall meet in private and reach a conclusion supported by two or more members. Private sessions of the DRB may be held at a location other than the job site or by electronic conferencing as deemed appropriate, in order to expedite the process.

The DRB's findings and recommendations, along with discussion of reasons therefor, shall then be submitted as a written report to both parties. Recommendations shall be based on the pertinent contract provisions, applicable laws and regulations, and facts and circumstances related to the dispute. The report shall be thorough in discussing the facts considered, the contract language, law or regulation viewed by the DRB as pertinent to the issues, and the DRB's interpretation and philosophy in arriving at its conclusions and recommendations. The DRB's report shall stand on its own, without attachments or appendices. The DRB chairman shall complete and furnish a summary report to the DRB Program Manager, Construction Program, M.S. 44, P.O. Box 942874, Sacramento, CA 94274.

With prior written approval of both parties, the DRB may obtain technical services necessary to adequately review the disputes presented; including audit, geotechnical, schedule analysis and other services. The parties' technical staff may supply those services as appropriate. The cost of any technical services, as agreed to by the parties, shall be borne

equally by the two parties as specified in an approved contract change order. The CONTRACTOR will not be entitled to markups for the payments made for these services.

The DRB shall resist submittal of incremental portions of information by either party, in the interest of making a fully-informed decision and recommendation.

The DRB shall make every effort to reach a unanimous decision. If this proves impossible, the dissenting member shall prepare a minority opinion, which shall be included in the DRB's report.

Although both parties should place weight upon the DRB's recommendations, they are not binding. Either party may appeal a recommendation to the DRB for reconsideration. However, reconsideration shall only be allowed when there is new evidence to present, and the DRB shall accept only one appeal from each party pertaining to any individual DRB recommendation. The DRB shall hear appeals in accordance with the terms described in the Section entitled "Disputes Review Board" in the special provisions.

**E. DRB Member Replacement**

Should the need arise to appoint a replacement DRB member, the replacement DRB member shall be appointed in the same manner as the original DRB members were appointed. The selection of a replacement DRB member shall begin promptly upon notification of the necessity for a replacement and shall be completed within 14 days. This AGREEMENT will be amended to indicate change in DRB membership.

## III
## CONTRACTOR RESPONSIBILITIES

The CONTRACTOR shall furnish to each DRB member one copy of all pertinent documents which are or may become necessary for the DRB to perform their function. Pertinent documents are any drawings or sketches, calculations, procedures, schedules, estimates, or other documents which are used in the performance of the work or in justifying or substantiating the CONTRACTOR's position. The CONTRACTOR shall also furnish a copy of such pertinent documents to the STATE, in accordance with the terms outlined in the special provisions.

## IV
## STATE RESPONSIBILITIES

The STATE will furnish the following services and items:

**A. Contract Related Documents**

The STATE will furnish to each DRB member one copy of Notice to Contractors and Special Provisions, Proposal and Contract, Plans, Standard Specifications, and Standard Plans, change orders, written instructions issued by the STATE to the CONTRACTOR, or other documents pertinent to any dispute that has been referred to the DRB and necessary for the DRB to perform its function.

**B. Coordination and Services**

The STATE, through the Engineer, will, in cooperation with the CONTRACTOR, coordinate the operations of the DRB. The Engineer will arrange or provide conference facilities at or near the project site and provide secretarial and copying services to the DRB without charge to the CONTRACTOR.

## V
## TIME FOR BEGINNING AND COMPLETION

Once established, the DRB shall be in operation until the day of acceptance of the contract. The DRB members shall not begin any work under the terms of this AGREEMENT until authorized in writing by the STATE.

## VI
## PAYMENT

**A. All Inclusive Rate Payment**

The STATE and the CONTRACTOR shall bear the costs and expenses of the DRB equally. Each DRB board member shall be compensated at an agreed rate of $1,000.00 per day if time spent per meeting, including all on-site time plus one hour of travel time, is greater than four hours. Each DRB board member shall be compensated at an agreed rate

of $600.00 per day if time spent per meeting, including all on-site time plus one hour of travel time, is less than or equal to four hours. The agreed rates shall be considered full compensation for on-site time, travel expenses, transportation, lodging, time for travel and incidentals for each day, or portion thereof, that the DRB member is at an authorized DRB meeting. No additional compensation will be made for time spent by DRB members in review and research activities outside the official DRB meetings unless that time has been specifically agreed to in advance by the STATE and CONTRACTOR. Time away from the project, that has been specifically agreed to in advance by the parties, will be compensated at an agreed rate of $100.00 per hour. The agreed amount of $100.00 per hour shall include all incidentals including any expenses for telephone, fax and computer services. Members serving on more than one DRB, regardless of the number of meetings per day, shall not be paid more than the all inclusive rate per day or rate per hour for an individual project. The STATE will provide, at no cost to the CONTRACTOR, administrative services such as conference facilities and secretarial services to the DRB.

**B. Payments**

All DRB members shall be compensated at the same rate. The CONTRACTOR shall make direct payments to each DRB member for their participation in authorized meetings and approved hourly rate charges from invoices submitted by each DRB member. The STATE will reimburse the CONTRACTOR for its share of the costs of the DRB.

The DRB members may submit invoices to the CONTRACTOR for partial payment for work performed and services rendered for their participation in authorized meetings not more often than once per month during the progress of the work. The invoices shall be in a format approved by the parties and accompanied by a general description of activities performed during that billing period. Payment for any hourly fees, at the agreed rate, shall not be paid to a DRB member until the amount and extent of those fees are approved by the STATE and CONTRACTOR.

Invoices shall be accompanied by original supporting documents, which the CONTRACTOR shall include with the extra work billing when submitting for reimbursement of the STATE's share of cost from the STATE. The CONTRACTOR will be reimbursed for one-half of approved costs of the DRB. No markups will be added to the CONTRACTOR's payment.

**C. Inspection of Costs Records**

The DRB members and the CONTRACTOR shall keep available for inspection by representatives of the STATE and the United States, for a period of three years after final payment, the cost records and accounts pertaining to this AGREEMENT. If any litigation, claim, or audit arising out of, in connection with, or related to this contract is initiated before the expiration of the three-year period, the cost records and accounts shall be retained until such litigation, claim, or audit involving the records is completed.

## VII
## ASSIGNMENT OF TASKS OF WORK

The DRB members shall not assign any of the work of this AGREEMENT.

## VIII
## TERMINATION OF AGREEMENT, THE DRB, AND DRB MEMBERS

DRB members may resign from the DRB by providing not less than 14 days written notice of the resignation to the STATE and CONTRACTOR. DRB members may be terminated by their original appointing power, in accordance with the terms of the contract.

## IX
## LEGAL RELATIONS

The parties hereto mutually understand and agree that the DRB member in the performance of duties on the DRB, is acting in the capacity of an independent agent and not as an employee of either party.

No party to this AGREEMENT shall bear a greater responsibility for damages or personal injury than is normally provided by Federal or State of California Law.

Notwithstanding the provisions of this contract that require the CONTRACTOR to indemnify and hold harmless the STATE, the parties shall jointly indemnify and hold harmless the DRB members from and against all claims, damages, losses, and expenses, including but not limited to attorney's fees, arising out of and resulting from the findings and recommendations of the DRB.

## X
## CONFIDENTIALITY

The parties hereto mutually understand and agree that all documents and records provided by the parties in reference to issues brought before the DRB, which documents and records are marked "Confidential - for use by the DRB only", shall be kept in confidence and used only for the purpose of resolution of subject disputes, and for assisting in development of DRB findings and recommendations; that such documents and records will not be utilized or revealed to others, except to officials of the parties who are authorized to act on the subject disputes, for any purposes, during the life of the DRB. Upon termination of this AGREEMENT, said confidential documents and records, and all copies thereof, shall be returned to the parties who furnished them to the DRB. However, the parties understand that such documents shall be subsequently discoverable and admissible in court or arbitration proceedings unless a protective order has been obtained by the party seeking further confidentiality.

## XI
## DISPUTES

Any dispute between the parties hereto, including disputes between the DRB members and either party or both parties, arising out of the work or other terms of this AGREEMENT, which cannot be resolved by negotiation and mutual concurrence between the parties, or through the administrative process provided in the contract, shall be resolved by arbitration as provided in Section 9-1.10, "Arbitration," of the Standard Specifications.

## XII
## VENUE, APPLICABLE LAW, AND PERSONAL JURISDICTION

In the event that any party, including an individual member of the DRB, deems it necessary to institute arbitration proceedings to enforce any right or obligation under this AGREEMENT, the parties hereto agree that any such action shall be initiated in the Office of Administrative Hearings of the State of California. The parties hereto agree that all questions shall be resolved by arbitration by application of California law and that the parties to such arbitration shall have the right of appeal from such decisions to the Superior Court in accordance with the laws of the State of California. Venue for the arbitration shall be Sacramento or any other location as agreed to by the parties.

## XIII
## FEDERAL REVIEW AND REQUIREMENTS

On Federal-Aid contracts, the Federal Highway Administration shall have the right to review the work of the DRB in progress, except for any private meetings or deliberations of the DRB.

All other Federal requirements in this agreement shall only apply to Federal-Aid contracts.

## XIV
## CERTIFICATION OF THE CONTRACTOR, THE DRB MEMBERS, AND THE STATE

IN WITNESS WHEREOF, the parties hereto have executed this AGREEMENT as of the day and year first above written.

DRB MEMBER

By: _____

Title: _____

DRB MEMBER

By :_____

Title :_____

DRB MEMBER

By: _____

Title :_____

CONTRACTOR

CALIFORNIA STATE DEPARTMENT
OF TRANSPORTATION

By: _____ By: _____

Title: _____ Title: _____

**5-1.19 AERIALLY DEPOSITED LEAD**

The material in the unpaved areas in the Contractor's work zone contains lead. This material shall be kept within the highway Right-of-Way. Information on the known quantities of lead, and technical information is included in "Materials Information" available to bidders.

Attention is directed to "Earthwork" and "Clearing and Grubbing" elsewhere in these special provisions regarding the handling of materials with lead.

Excavation, reuse, and disposal of material with lead shall be in accordance with all rules and regulations of agencies including, but not limited to, the following:

United States Department of Transportation (USDOT)
United States Environmental Protection Agency (USEPA)
California Environmental Protection Agency (Cal-EPA)
Department of Toxic Substances Control (DTSC), Region 9
Integrated Waste Management Board
Regional Water Quality Control Board (RWQCB), Region 9
State Air Resources Control Board
San Diego Air Pollution Control District (APCD)
California Division of Occupational Safety and Health Administration (CAL-OSHA)

The Contractor shall prepare a Health and Safety Compliance Plan for all site personnel in accordance with CAL-OSHA regulations. The Contractor's attention is directed to Title 8, California Code of Regulations Section 1532.1 (8 CCR 1532.1) in the Construction Safety Orders. The compliance plan required shall be approved by a Certified Industrial Hygienist. The plan shall be submitted at least 5 days prior to beginning excavation work.

Prior to performing excavation work, personnel who will be working in the areas containing lead, including State personnel, shall complete a safety training program which meets the requirements of 8 CCR 1532.1. Any personal protective equipment required by the Contractor's Health and Safety Compliance Plan, for personnel working within areas with lead, shall be supplied to State personnel by the Contractor. The number of State personnel requiring the safety training and any protective equipment will be 5.

Full compensation for conforming to the requirements of this section shall be considered as included in the contract prices paid per cubic yard for structure excavation (bridge) and structure backfill (bridge) and no additional compensation will be allowed therefor.

**5-1.20 NO WORK AREA**

The Contractor's attention is directed to the areas designated on the plans as "No Work Area,". These areas are to be completely avoided by all parties involved in any work activity in connection with the performance of this contract. The areas shall be accessible to the public at all times except that During Stage 7 the Fountain, in Area 6, shall be closed to the public.

The Contractor shall perform a photographic survey of the no work areas prior to the beginning of construction. Any damage to the facilities within these areas due to the Contractors operations shall be repaired immediately by the Contractor at his own expense. If the repairs are not completed immediately the Contractor shall cease all other work until the repairs have been made in a satisfactory manner as determined by the Engineer.

Full compensation for performing the survey shall be considered as included in the contract price paid for the various items of work involved and no separate payment will be made therefor.

**5-1.21 ARCHAEOLOGIST**

An Archaeologist will be provided by the State for this project. The Contractor, shall notify the Engineer in writing 10 days in advance, of the initiation of work within an area of the project limits. The Contractor shall give additional such written notices for each and every location as the project progresses.

The Archaeologist will determine whether or not monitoring of the work area for buried historical archaeological remains will be required. If monitoring is required, the Contractor shall cooperate with the State Monitor.

If buried historical remains are found and, if in the opinion of the Engineer, the Contractor's operations are delayed or interfered with, the State will compensate the Contractor for such delays to the extent provided in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

**5-1.22 FORCE ACCOUNT PAYMENT**

The second, third and fourth paragraphs of Section 9-1.03A, "Work Performed by Contractor," of the Standard Specifications, shall not apply.

To the total of the direct costs computed as provided in Sections 9-1.03A(1), "Labor," 9-1.03A(2), "Materials," and 9-1.03A(3), "Equipment Rental," of the Standard Specifications, there will be added a markup of 25 percent to the cost of labor, 10 percent to the cost of materials, and 10 percent to the equipment rental.

The above markups, together with payments made for time related overhead pursuant to "Overhead" of these special provisions, shall constitute full compensation for all overhead costs for work performed on a force account basis. These overhead costs shall be deemed to include all items of expense not specifically designated as cost or equipment rental in Sections 9-1.03A(1), "Labor," 9-1.03A(2), "Materials," and 9-1.03A(3), "Equipment Rental," of the Standard Specifications. The total payment made as provided above and in the first paragraph of Section 9-1.03A, "Work Performed by Contractor," shall be deemed to be the actual cost of the work performed on a force account basis, and shall constitute full compensation therefor.

When extra work to be paid for on a force account basis is performed by a subcontractor, approved in accordance with the provisions in Section 8-1.01, “Subcontracting,” of the Standard Specifications, an additional markup of 5 percent will be added to the total cost of said extra work including all markups specified in this section "Force Account Payment". Said additional 5 percent markup shall reimburse the Contractor for additional administrative costs, and no other additional payment will be made by reason of performance of the extra work by a subcontractor.

**5-1.23 OVERHEAD**

The Contractor will be compensated for overhead in accordance with these special provisions.

Attention is directed to "Force Account Payment" and "Progress Schedule (Critical Path)" of these special provisions.

Section 9-1.08, "Adjustment of Overhead Costs," of the Standard Specifications shall not apply.

Time related overhead shall consist of those overhead costs, including field and home office overhead, that are in proportion to the time required to complete the work.

The quantity of time related overhead to be measured for payment will be the number of working days specified in "Beginning of Work, Time of Completion and Liquidated Damages" of these special provisions, adjusted only as a result of suspensions and adjustments of time which revise the current contract completion date and which are also any of the following:

1) suspensions of work ordered in accordance with Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications, except:

    a) suspensions ordered due to the failure on the part of the Contractor to carry out orders given, or to perform any provision of the contract; and
    b) suspensions ordered due to unsuitable weather conditions;

2) extensions of time granted by the State in accordance with the provisions of the fifth paragraph of Section 8-1.07, "Liquidated Damages," of the Standard Specifications; or
3) reductions in contract time set forth in approved contract change orders, in accordance with Section 4-1.03, "Changes," of the Standard Specifications.

The contract price paid for time related overhead shall include full compensation for time related overhead measured for payment as specified above, incurred by the Contractor and by any joint venture partner, subcontractor, supplier or other party associated with the Contractor.

No adjustment in compensation will be made for any increase or decrease in the quantities of time related overhead required, regardless of the reason for the increase or decrease. The provisions in Sections 4-1.03B, "Increased or Decreased Quantities" and 4-1.03C, "Changes in Character of the Work," of the Standard Specifications, shall not apply to time related overhead.

For progress payment purposes, the number of working days to be paid for time related overhead in each monthly estimate will be the number of working days specified above to be measured for payment that the Contractor performed work on the current controlling operation or operations as specified in Section 8-1.06, "Time of Completion," of the Standard Specifications. Working days specified above to be measured for payment, on which the Contractor did not perform work on the controlling operation or operations will be measured and included for payment in the first estimate made in accordance with Section 9-1.07, "Payment After Acceptance," of the Standard Specifications.

Full compensation for overhead other than time related overhead measured and paid for as specified above, and other than overhead costs for extra work performed pursuant to Section 4-1.03D of the Standard Specifications, shall be considered as included in the various items of work and no additional compensation will be allowed therefor.

**5-1.24 COST REDUCTION INCENTIVE PROPOSAL**

Attention is directed to Section 5-1.14, “Cost Reduction Incentive,” of the Standard Specifications.

Prior to preparing a cost reduction proposal, the Contractor shall request a meeting with the Engineer to discuss the proposal in concept and to determine whether the cost reduction proposal will be considered by the Department. Items of discussion will also include permit issues, impact on other projects, impact on the project schedule, traffic considerations, safety, health issues, design criteria, and review times required by the department and other agencies.

Determination by the Engineer that cost reduction proposal will not be considered will be deemed rejection of the proposal.

**5-1.25 CLAIMS SUBMITTAL**

Claims submittal may be made on work completed, except for plant establishment work, upon receiving relief from maintenance and responsibility for the completed work in lieu of acceptance by the Director as specified in Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications. Claims submitted upon granting of relief from maintenance and responsibility will be processed in accordance with Section 9-1.07B of the Standard Specifications and these special provisions.

Upon the request of the Contractor, relief from maintenance and responsibility for work completed in accordance with the requirements of the contract and to the satisfaction of the Engineer may be granted as specified in Section 7-1.15, "Relief From Maintenance and Responsibility," of the Standard Specifications. Within 90 days of granting relief from maintenance and responsibility, the Engineer will issue to the Contractor, in writing, a progress pay estimate finalizing the completed items of work. Within 30 days after receiving the progress pay estimate, the Contractor may submit to the Engineer a written statement of the claims arising under the contract exclusive of plant establishment work. No claim arising from work which relief of maintenance and responsibility were granted will be considered that was not included in the written statement of claims.

The proposed final estimate for the contract will be submitted to the Contractor after acceptance of the work, including plant establishment. After submittal of the proposed final estimate, no claim will be considered except for those arising from plant establishment work or additional work ordered by the Engineer during the plant establishment period of the contract.

The process for resolution of the contract claims, including plant establishment work, by arbitration shall not begin until acceptance of the work by the Engineer and shall be in accordance with Section 9-1.10, "Arbitration," of the Standard Specifications.

**5-1.26 PAYMENTS**

Attention is directed to Section 9-1.06, "Partial ," and 9-1.07, "Payment After Acceptance," of the Standard Specifications and these special provisions.

For the purpose of making partial payments pursuant to Section 9-1.06, "Partial Payments," of the Standard Specifications, the amount set forth for the contract items of work hereinafter listed shall be deemed to be the maximum value of said contract item of work which will be recognized for progress payment purposes.

| | |
|---|---|
| Clearing and Grubbing | $ 85,000 |
| Develop Water Supply | $ 5,000 |

After acceptance of the contract pursuant to Section 7-1.17, "Acceptance of Contract," of the Standard Specifications, the amount, if any, payable for a contract item of work in excess of the maximum value for progress payment purposes hereinabove listed for said item, will be included for payment in the first estimate made after acceptance of the contract.

In determining the partial payments to be made to the Contractor, only the following listed materials will be considered for inclusion in said payment as materials furnished but not incorporated in the work:

Bar reinforcing steel
Miscellaneous metal
Valves
Sprinklers
Pipe (Supply Line)
Irrigation controller
Culvert pipe and appurtenances
Miscellaneous iron and steel
Lighting standards
Luminaires

Plate steel for fabrication of structural steel, stored within the State of California, and fabricated elements for structural steel, fabricated and stored within the United States, will be eligible for partial payment if the Contractor furnishes evidence satisfactory to the Engineer that its storage is subject to or under the control of the Department and

that it has been designated or fabricated specifically for this project and is of such character that is not adaptable to any other use.

**5-1.27 SOUND CONTROL REQUIREMENTS**

Sound control shall conform to the provisions in Section 7-1.01I, "Sound Control Requirements," of the Standard Specifications and these special provisions.

Information on the sound levels, and technical information is included in "Materials Information" available for inspection at the office of the Director of Transportation at 2829 Juan Street, San Diego, California 92110.

The requirements in this Section in no way relieves the Contractor from responsibility for complying with local ordinances regulating noise level outside the limits of the State right of way.

Full compensation for conforming to the requirements of the local ordinances and this section shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

**5-1.28 TEMPORARY NOISE BLANKET**

The Contractor shall furnish and install temporary noise blankets, of the Sound Transmission Class (STC) ratings, as shown on the plans and at the locations shown on the plans. The blankets shall fully shield the work area. The blankets shall be in place prior to the commencement of work in the area designated to be shielded. Temporary noise blankets shall be maintained for cleanliness and free of graffiti, holes, cracks and tears.

When the Engineer determines that a temporary noise blankets is no longer needed it shall be removed.

Temporary noise blankets are for daytime noise mitigation.

Sound control for nighttime work will be paid for as extra work as provided in Section 4-l.03D of the Standard Specifications. The Contractor shall coordinate with the Engineer to try and reduce interior nighttime noise levels to 52 dBA.

Attention is directed to Project Appearance elsewhere in these special provisions.

Temporary noise blankets will be measured by the square yard.

The contract unit price paid per square yard for temporary noise blanket shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in temporary noise blanket, except for graffiti removal, complete in place, including removing the temporary noise blankets, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**5-1.29 PROJECT APPEARANCE**

The Contractor shall maintain a neat appearance to the work.

In any area visible to the public, the following shall apply:

When practicable, broken concrete and debris developed during clearing and grubbing shall be disposed of concurrently with its removal. If stockpiling is necessary, the material shall be removed or disposed of weekly.

The Contractor shall furnish trash bins for all debris from structure construction. All debris shall be placed in trash bins daily. Forms or falsework that are to be re-used shall be stacked neatly concurrently with their removal. Forms and falsework that are not to be re-used shall be disposed of concurrently with their removal.

The Contractor shall remove all graffiti from working areas within the project limits, including the sound barriers and his equipment, in accordance with Section 7-1.08, “Public Convenience,” and Section 7-1.09, “Public Safety,” of the Standard Specifications and as directed by the Engineer. Sound barriers and Contractor’s equipment outside of the working area shall be free of graffiti regardless of the area in which the Contractor is working.

Graffiti removal will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

**5-1.30 AREAS FOR CONTRACTOR'S USE**

No area is available within the contract limits for the exclusive use of the Contractor. However, temporary storage of equipment and materials on State property may be arranged with the Engineer, subject to the prior demands of State maintenance forces and to all other contract requirements. Use of the Contractor's work areas and other State-owned property shall be at the Contractor's own risk, and the State shall not be held liable for any damage to or loss of materials or equipment located within such areas.

The Contractor shall remove all equipment, materials, and rubbish from the work areas and other State-owned property which he occupies and shall leave the areas in a presentable condition, in conformance with the provisions in Section 4-1.02, "Final Cleaning Up," of the Standard Specifications.

The Contractor shall secure at his own expense any area required for storage of plant, equipment and materials, or for other purposes if sufficient area is not available to him within the contract limits.

**5-1.31 UTILITIES**

The Contractor shall make his own arrangements to obtain electrical power, water, compressed air and other utilities required for his operations and shall make and maintain the necessary service connections at his own expense. The Contractor shall not be allowed the use of any existing utilities on the bridge or within the contract limits unless otherwise approved in writing by the Engineer.

**5-1.32 SANITARY PROVISIONS**

State sanitary facilities will not be available for use by the Contractor's employees.

**5-1.33 BRIDGE TOLLS**

Toll-free passage on the San Diego-Coronado Bay Bridge will be granted only for cars, trucks and special construction equipment which are clearly marked on the exterior with the Contractor's identification and which are being operated by the Contractor exclusively for the project and for the purpose of transporting materials and workmen directly to and from the jobsite.

The Contractor shall make application to the Engineer in advance for toll-free passage. The Contractor will be held accountable for the proper use of all passes issued, and upon completion of the work, shall return all unused passes.

Attention is directed to Section 23302, "Evasion of Toll," of the Vehicle Code.

**5-1.34 ACCESS TO JOBSITE**

Prospective bidders may make arrangements to visit the jobsite by contacting the Engineer, San Diego-Coronado Bay Bridge Seismic Retrofit Project, at telephone (619) 688-3224.

**5-1.35 ELECTRICAL SITE INSPECTION**

An electrical site inspection will be conducted by the Engineer on October 14, 1998. Bidders shall contact the District Construction Electrical Engineer at telephone No. (619) 467-4094 at least 2 days in advance to attend the electrical site inspection. Bidders are to be assembled in a room at the Department of Transportation, 1700 Glorietta Plaza, Coronado, CA 92118. Bids will be accepted only for those bidders who have examined the site of work before bidding or who have full knowledge of all facilities and difficulties affecting the work which may not be particularly described herein. No variation or allowance from the contract sum will be made because of such examinations or knowledge.

**5-1.36 DRAWINGS**

Attention is directed to Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications and these special provisions.

When working drawings are required by these special provisions, the drawings shall be submitted in accordance with the provisions in Section 55-1.02, "Drawings," of the Standard Specifications and the following:

1. Working drawings shall be submitted to the Engineer.
2. Working drawings shall not exceed 22" x 34" in size.
3. Microfilms are required of all approved shop drawings and shall be only a 24x reduction.

At the completion of the contract, one set of all approved final working drawings in electronic form, including any revisions required after approval, shall be furnished to the Engineer.

Electronic files of working drawings shall be Microstation Version 5.0 or a more current design file format, and shall be submitted on compact disk media.

An index prepared specifically for the working drawings for each portion of the work which requires working drawings, containing sheet numbers and titles shall be included on the compact disk media. Electronic files for working drawings shall be arranged in the order of drawing numbers shown in the index.

## SECTION 6. (BLANK)

## SECTION 7. (BLANK)

## SECTION 8. MATERIALS

## SECTION 8-1. MISCELLANEOUS

### 8-1.01 PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS

The Department maintains a trade name list of approved prequalified and tested signing and delineation materials and products. Approval of prequalified and tested products and materials shall not preclude the Engineer from sampling and testing of the signing and delineation materials or products at any time.

None of the listed signing and delineation materials and products shall be used in the work unless material or product is listed on the Department's List of Approved Traffic Products. A Certificate of Compliance shall be furnished as specified in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for signing and delineation materials and products. The certificate shall also certify that the signing and delineation material or product conforms to the prequalified testing and approval of the Department of Transportation, Division of Traffic Operations and was manufactured in accordance with the approved quality control program.

Materials and products will be considered for addition to the approved prequalified and tested list if the manufacturer of the material or product submits to the Division of Traffic Operations a sample of the material or product. The sample shall be sufficient to permit performance of required tests. Approval of materials or products will be dependent upon a determination as to compliance with the specifications and test the Department may elect to perform.

The following is a listing of approved prequalified and tested signing and delineation materials and products:

**Pavement Markers, Permanent Type**

REFLECTIVE

1. Adelite (4"x4")
2. Apex, Model 921 (4"x4")
3. Pavement Markers, Inc., "Hye-Lite" (4"x4")
4. Ray-O-Lite, Models SS, RS and AA (4"x4")
5. Ray-O-Lite, Model 2002 (2.4"x4.7")
6. Stimsonite, Model 88 (4" x4")

REFLECTIVE WITH ABRASION RESISTANT SURFACE

1. Ray-O-Lite "AA" ARS (4"x4")(Not for use in recessed applications)
2. Ray-O-Lite Model 2002 ARS (2.2"x4.7")
3. Stimsonite, Model 911 (4"x4")(Not for use in recessed applications)
4. Stimsonite, Model 944 SB (2"x4")
5. Stimsonite, Model 948 (2.3"x4.7")
6. Stimsonite, Model 953 (2.75"x4.5")(Not for use in recessed applications)

NON-REFLECTIVE FOR USE WITH EPOXY OR BITUMEN ADHESIVE

1. Apex Universal (Ceramic)
2. Highway Ceramics, Inc. (Ceramic)
3. Zumar, TM40W/Y (Polyester)

NON-REFLECTIVE FOR USE WITH BITUMEN ADHESIVE ONLY

1. Apex Universal, Model 929 (ABS)
2. Elgin Molded Plastics, "Empco-Lite" Model 900 (ABS)
3. Hi-Way Safety, Inc., Models P20-2000W and 2001Y (ABS)
4. Interstate Sales, "Diamond Back" (ABS)
5. Loomis Plastics, D-Dot (ABS)
6. Pavement Markers, Inc., (Marker Supply) - Models A1107 and AY1108 (ABS)
7. Road Creations, Model RCB4NR (Acrylic)

**Pavement Markers, Temporary Type**

TEMPORARY MARKERS FOR LONG TERM DAY/NIGHT USE (6 months or less)

1. Apex Universal, Model 924 (4"x4")
2. Davidson Plastics, Model 3.0
3. Elgin Molded Plastics, "Empco-Lite" Model 901 (4" Round)
4. Highway Technologies, Megalites (4"x4")
5. Road Creations, Model R41C (4"x4")
6. Vega Molded Products "Temporary Road Marker" (3"x4")

TEMPORARY MARKERS FOR SHORT TERM DAY/NIGHT USE (14 days or less)

1. Apex Universal, Model 932
2. Davidson Plastics, Models TOM (Standard) with Reflexite PC-1000, or (WZ) with Reflexite AC-1000 Sheeting
3. Hi-Way Safety, Inc., Model 1280/1281 with Reflexite PC-1000

TEMPORARY MARKERS FOR SHORT TERM DAY/NIGHT USE (14 days or less at seal coat locations)

1. Apex Universal, Model 932
2. Davidson Plastics, Models TRPM (Standard) with Reflexite PC-1000, or (WZ) with Reflexite AC-1000 Sheeting
3. Davidson Plastics, Models "HH" (High Heat) TRPM (Standard) with Reflexite PC-1000, or (WZ) with Reflexite AC-1000 Sheeting
4. Hi-Way Safety, Inc., Model 1280/1281 with Reflexite PC-1000

**Striping and Pavement Marking Materials**

PERMANENT TRAFFIC STRIPING AND PAVEMENT MARKING TAPE (For use on high and low volume roadways)

1. Advanced Traffic Marking, Series 300 and 400
2. Brite-Line, Series 1000
3. Swarco Industries, "Director 35" (For transverse application only)
4. Swarco Industries, "Director 60"
5. 3M, "Stamark" Series 380, A420, A440 and 5730
6. 3M, "Stamark" Series N420 and N440 (For transverse application only)

PERMANENT TRAFFIC STRIPING AND PAVEMENT MARKING TAPE (For use on low volume roadways only)

1. 3M, "Stamark" Series A320 Bisymetric

TEMPORARY REMOVABLE STRIPING AND PAVEMENT MARKING TAPE

1. Advanced Traffic Marking, ATM Series 200
2. Brite-Line, Series 100
3. P.B. Laminations, Aztec, Grade 102
4. Swarco Industries, "Director-2"
5. 3M, "Stamark" Brand, Detour Grade, Series 5710 and A620

PREFORMED THERMOPLASTIC

1. Flint Trading, "Premark" and "Permark 20/20 Flex"
2. Pavemark, "Hotape"

REMOVABLE TRAFFIC PAINT

1. Belpro, Series 250/252 and No. 93 Remover

**Class 1 Delineators**

ONE-PIECE DRIVEABLE FLEXIBLE TYPE, 1700 mm (66")

1. Carsonite, Curve-Flex CFRM-400
2. Carsonite, Roadmarker CRM-375
3. Davidson Plastics, "Flexi-Guide Models 400 and 566"
4. GreenLine Model HWDI-66
5. GreenLine Model CGDI-66
6. J. Miller Industries, Model JMI-375 with soil anchor)

SPECIAL USE FLEXIBLE TYPE, 1200 mm (48")

1. Carsonite, "Survivor" with 18" U-Channel anchor
2. FlexStake, H-D
3. GreenLine HWD with 18" soil anchor
4. GreenLine CGD with 18" soil anchor
5. Safe-Hit with 8" pavement anchor (SH248-GP1)
6. Safe-Hit with 15" soil anchor (SH248-GP2)
7. Safe-Hit with 18" soil anchor (SH248-GP3)

SURFACE MOUNT FLEXIBLE TYPE, 1200 mm (48")

1. Bent Manufacturing Co., "Masterflex" Model MF-180EX-48"
2. Carsonite, "Super Duck II"
3. FlexStake, Surface Mount H-D

**Channelizers**

SURFACE MOUNT TYPE, 900 mm (36")

1. Bent Manufacturing Co., "Masterflex" Models MF-360-36 (Round) and MF-180-36" (Flat)
2. Carsonite, "Super Duck" (Flat SDF-436, Round SDR-336)
3. Carsonite, Super Duck II Model SDCF203601MB "The Channelizer"
4. Davidson Plastics, Flex-Guide FG300
5. FlexStake, Surface Mount H-D
6. GreenLine, Model SMD-36
7. Repo, Models 300 and 400
8. Safe-Hit, Guide Post, Model SH236SMA, with glue down base
9. The Line Connection, "Dura-Post" Model DP36-3 (Permanent)
10. The Line Connection, "Dura-Post" Model DP36-3C (Temporary)

**Type K Object Markers, 450 mm (18")**

1. Carsonite, Model SMD-615
2. Repo, Models 300 and 400
3. Safe-Hit, Model SH718SMA
4. The Line Connection, Model DP21-4K (Vertical configuration only)

**Type K-4 Object Markers, 450-600 mm (18-24")**(previously listed as "Q")

1. Carsonite, Super Duck II
2. Repo, Models 300 and 400
3. Safe-Hit, Models SH824SMA--WA and SH824GP3--WA
4. The Line Connection, Model "DP21-4Q"

**Concrete Barrier Markers** (For use to the left of traffic)

IMPACTABLE TYPE

1. Astro Optics “FB”
2. Davidson Plastics, Model PCBM-12
3. Duraflex Corp., "Flexx 2020" and "Electriflexx"

NON-IMPACTABLE TYPE

1. Astro-Optics, JD Series
2. Stimsonite, Model 967 (with 3 1/4" Acrylic cube corner reflector)
3. Stimsonite, Model 967LS (with Stimsonite Sheeting)
4. Vega Molded Products, Models GBM and JD

**Thrie Beam Barrier Markers** (For use to the left of traffic)

1. Duraflex Corp., "Railrider"
2. Davidson Plastics, "Mini" (3"x10")

**Concrete Barrier Delineators, 400 mm (16")** (For use to the right of traffic. When mounted on top of barrier, places top of reflective element at 48" [1200 mm])

1. Davidson Plastics, Model PCBM T-16
2. Safe-Hit, Model SH216RBM

**Sound Wall Delineator** (On vertical surface, places top of reflective element at 48" [1200 mm])

1. Davidson Plastics, PCBM S-36

**Guard Railing Delineator, 685 mm (27") Wood Post Type** (For use to the right or left of traffic. Places reflective element at 48" [1200 mm].)

1. Carsonite, Model 427
2. Davidson Plastics FG 427 and FG-527
3. GreenLine GRD 27-inch
4. Safe-Hit, Model SH227GRD

**Guard Railing Delineator, 685 mm (27") Steel Post Type** (For use to the right or left of traffic. Places reflective element at 48" [1200 mm].)

1. Carsonite, Model CFGR-327 with CFGRBK300 Mounting Bracket

**Reflective Sheeting**

CHANNELIZERS, BARRIER MARKERS AND DELINEATORS

1. 3M, High Intensity (Long Term)
2. Reflexite, PC-1000, Metalized Polycarbonate (Long Term)
3. Reflexite, AC-1000, Acrylic (Long Term)
4. Reflexite, AP-1000, Metalized Polyester (Short Term)
5. Reflexite, AR-1000, Abrasion Resistant Coating) (Short Term)
6. Stimsonite, Series 4500 (For rigid substrate devices only)

TRAFFIC CONES, 330 mm (13") Sleeves

1. Reflexite SB (Polyester), Vinyl or "TR" (Semi-transparent)

TRAFFIC CONES, 100 and 150 mm (4" and 6") Sleeves

1. 3M Series 3840
2. Reflexite Vinyl or "TR" (Semi-transparent)

BARRELS AND DRUMS

1. Reflexite, "Super High Intensity"
2. 3M Series 3810

BARRICADES, Type I, Engineer Grade

1. American Decal, Adcolite
2. Avery Dennison, 1500/1600
3. 3M, Scotchlite, Series CW

SIGNS (Sheeting Types conforming to the requirements of ASTM Designation: D 4956-93B)

1. Type II, Super Engineer Grade (State-Furnished Signs Only)

    A. Avery Dennison, "Fasign" 2500 Series
    B. Kiwalite, Type II
    C. Nikkalite 1800 Series

2. Type III, High Performance

    A. 3M, High Intensity, Series 3780

3. Type IV, High Performance

    A. Stimsonite, Series 4200

4. Type VI, Roll-Up Signs

    A. Reflexite, Vinyl

**Sign Substrate for Construction Area Signs**

1. Aluminum
2. Fiberglass Reinforced Plastic (FRP)
3. Sequentia, "Polyplate"
4. Fiber-Brite

**8-1.02 STATE-FURNISHED MATERIALS**

Attention is directed to Section 6-1.02, "State-Furnished Materials," of the Standard Specifications and these special provisions.

The following materials will be furnished to the Contractor:

Self-adhesive reflective numbers and edge sealer for numbering lighting equipment.

**8-1.03 SLAG AGGREGATE**

Air-cooled iron blast furnace slag shall not be used on this project.

**8-1.04 MEASUREMENT OF QUANTITIES**

Attention is directed to the provisions in Section 9-1.01, "Measurement of Quantities," of the Standard Specifications and these special provisions.

The following is added after the third paragraph in Section 9-1.01, "Measurement of Quantities," of the Standard Specifications:

All elements of the material plant controller which affect the accuracy or delivery of data shall be made available for the application of security seals. These devices will be inspected and all adjusting elements sealed prior to the first production of materials for the contract. The security seals will be furnished by the Engineer. Material

production shall cease when alteration, disconnection, or otherwise manipulation of the security seals occur and production shall not resume until the device is inspected and resealed by the Engineer.

Within the limits of the project or at the plant site, the Contractor shall provide a vehicle platform scale of sufficient weighing capacity to check full production sized batches from all proportioning scales to be used in producing materials for the project. Such vehicle platform scale shall conform to the provisions in Section 9-1.01, "Measurement of Quantities," of the Standard Specifications.

Full compensation for furnishing and operating the vehicle platform scale required to check proportioning scales shall be considered to be included in the contract prices paid for the various contract items of work requiring the proportioning scales and no separate payment will be made therefor.

## SECTION 8-2. CONCRETE

### 8-2.01 PORTLAND CEMENT CONCRETE

Portland cement concrete shall conform to the provisions in Section 90, "Portland Cement Concrete," of the Standard Specifications and these special provisions.

Concrete truck washout pits will not be permitted on this project. The Contractor may install a portable unit within the project at a location designated by the Engineer.

Wherever the word "cement" is used in the Standard Specifications or the special provisions, and its use conforms to one of the following criteria, it shall be understood to mean "cementitious material":

A. When the cement content of portland cement concrete is specified and Section 90, "Portland Cement Concrete," of the Standard Specifications is referenced.
B. When the pounds of cement per cubic yard for portland cement concrete is specified and Section 90, "Portland Cement Concrete," of the Standard Specifications is referenced.

The above criteria shall not apply when the use of mineral admixture is not allowed.

Section 90-1.01, "Description," of the Standard Specifications is amended to read:

**90-1.01 Description.—**Portland cement concrete shall be composed of cementitious material, fine aggregate, coarse aggregate, admixtures if used, and water, proportioned and mixed as specified in these specifications.

Unless otherwise specified, cementitious material to be used in portland cement concrete shall conform to the requirements for cement and mineral admixtures in Section 90-2, "Materials" and shall be either: 1) "Type IP (MS) Modified" cement; or 2) a combination of "Type II Modified" portland cement and mineral admixture.

Unless otherwise specified, for precast, steam cured, or other high early strength concrete, mineral admixture will not be required if it has been determined by the Transportation Laboratory and documented in writing by the Engineer that the aggregate is from a source that is not alkali silica reactive.

Concrete for each portion of the work shall comply with the requirements for the Class, cementitious material content in pounds per cubic yard, 28-day compressive strength, minor concrete, or commercial quality concrete, as shown on the plans or specified in these specifications or the special provisions.

Class A concrete shall contain not less than 564 pounds of cementitious material per cubic yard.

Class B concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

Class C concrete shall contain not less than 376 pounds of cementitious material per cubic yard.

Class D concrete shall contain not less than 658 pounds of cementitious material per cubic yard.

Minor concrete shall contain not less than 564 pounds of cementitious material per cubic yard unless otherwise specified in these specifications or the special provisions.

Unless otherwise designated on the plans or specified in these specifications or the special provisions, the amount of cementitious material used per cubic yard of concrete in structures or portions of structures shall conform to the following:

| Use | Cementitious Material Content in pounds |
|---|---|
| Concrete which is designated by compressive strength: | |
| Deck slabs and slab spans of bridges | 658 min., 800 max. |
| Roof sections of exposed top box culverts | 658 min., 800 max. |
| Other portions of structures | 564 min., 800 max. |
| Concrete not designated by compressive strength: | |
| Deck slabs and slab spans of bridges | 658 min. |
| Roof sections of exposed top box culverts | 658 min. |
| Prestressed members | 658 min. |
| Seal courses | 658 min. |
| Other portions of structures | 564 min. |

Whenever the 28-day compressive strength shown on the plans is 3,500 pounds per square inch or greater, the concrete shall be considered to be designated by compressive strength. If the plans show a 28-day compressive strength which is 4,500 pounds per square inch or greater, an additional 7 days will be allowed to obtain the specified strength. The 28-day compressive strengths shown on the plans which are less than 3,500 pounds per square inch, are shown for design information only and are not to be considered a requirement for acceptance of the concrete.

Concrete designated by compressive strength shall be proportioned such that the concrete will conform to the strength shown on the plans or specified in the special provisions.

The Contractor shall determine the mix proportions for all concrete except pavement concrete. The Engineer will determine the mix proportions for pavement concrete.

Before using concrete for which the mix proportions have been determined by the Contractor, or in advance of revising those mix proportions, the Contractor shall submit in writing to the Engineer a copy of the mix design.

Compliance with cementitious material content requirements will be verified in accordance with procedures described in California Test 518 for cement content. For testing purposes, mineral admixture shall be considered to be cement. Batch proportions shall be adjusted as necessary to produce concrete having the specified cementitious material content.

If any concrete used in the work has a cementitious material content, consisting of cement, mineral admixture, or cement plus mineral admixture, which is less than the minimum required for the work, the concrete shall be removed. However, if the Engineer determines that the concrete is structurally adequate, the concrete may remain in place and the Contractor shall pay to the State $0.25 for each pound of cement, mineral admixture, or cement plus mineral admixture which is less than the minimum required for the work. The Department may deduct the amount from any monies due, or that may become due, the Contractor under the contract. The deductions will not be made unless the difference between the contents required and those actually provided exceeds the batching tolerances permitted by Section 90-5, "Proportioning." No deductions for cementitious material content will be made based on the results of California Test 518.

The requirements of the preceding paragraph shall not apply to minor concrete nor commercial quality concrete.

All concrete for which the mix proportions are determined either by the Contractor or the Engineer shall conform to the requirements of this Section 90.

The first paragraph in Section 90-2.01, "Portland Cement," of the Standard Specifications is amended to read:

**90-2.01 Portland Cement.—**Unless otherwise specified, portland cement shall be either "Type IP (MS) Modified" cement or "Type II Modified" portland cement.

"Type IP (MS) Modified" cement shall conform to the specifications for Type IP (MS) cement in ASTM Designation: C 595, and shall be comprised of an intimate mixture of Type II cement and not more than 25 percent of a mineral admixture. The type and minimum amount of mineral admixture used in the manufacture of "Type IP (MS) Modified" cement shall be in accordance with the provisions of Section 90-4.08, "Required Use of Mineral Admixtures."

"Type II Modified" portland cement shall conform to the specifications for Type II portland cement in ASTM Designation: C 150.

In addition, "Type IP (MS) Modified" cement and "Type II Modified" portland cement shall conform to the following requirements:

A. The cement shall not contain more than 0.60 percent by weight of alkalies, calculated as the percentage of $Na_2O$ plus 0.658 times the percentage of $K_2O$, when determined by either direct intensity flame photometry

or by the atomic absorption method. The instrument and procedure used shall be qualified as to precision and accuracy in accordance with the requirements of ASTM Designation: C 114.

B. The autoclave expansion shall not exceed 0.50 percent.

C. Mortar, containing the cement to be used and Ottawa sand, when tested in accordance with California Test 527, shall not expand in water more than 0.010 percent and shall not contract in air more than 0.048 percent except that when cement is to be used for precast prestressed concrete piling, precast prestressed concrete members or steam cured concrete products, the mortar shall not contract in air more than 0.053 percent.

The second paragraph in Section 90-2.01, "Portland Cement," of the Standard Specifications is amended to read:

Type III and Type V portland cements shall conform to the specifications in ASTM Designation: C 150, and the modifications listed above for Type II Modified portland cement, except that when tested in accordance with California Test 527, mortar containing Type III portland cement shall not contract in air more than 0.075 percent.

The third paragraph in Section 90-2.01, "Portland Cement," of the Standard Specifications is deleted.
The twelfth paragraph in Section 90-2.02, "Aggregates," of the Standard Specifications is deleted.
The first paragraph in Section 90-2.03, "Water," of the Standard Specifications is amended to read:

**90-2.03 Water.—**In conventionally reinforced concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 1,000 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as $SO_4$. In prestressed concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 650 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as $SO_4$. In no case shall the water contain an amount of impurities that will cause either: 1) a change in the setting time of cement of more than 25 percent when tested in accordance with ASTM Designation: C 191 or ASTM Designation: C 266; or 2) a reduction in the compressive strength of mortar at 14 days of more than 5 percent, when tested in accordance with ASTM Designation: C 109, when compared to the results obtained with distilled water, tested in accordance with ASTM Designation: C 109.

The following section is added to Section 90-2, "Materials," of the Standard Specifications:

**90-2.04 Admixture Materials.—**Admixture materials shall conform to the requirements of the ASTM Designations shown below:

Chemical Admixtures—ASTM Designation: C 494.
Air-entraining Admixtures—ASTM Designation: C 260.
Calcium Chloride—ASTM Designation: D 98.
Mineral Admixtures—Coal fly ash, raw or calcined natural pozzolan as specified in ASTM Designation: C 618, except that the loss on ignition shall not exceed 4 percent, or, silica fume as specified in ASTM Designation: C 1240, with reduction of mortar expansion of 80 percent, minimum, using the cement from the proposed mix design.

Mineral admixtures shall be used in accordance with the provisions in Section 90-4.08, "Required Use of Mineral Admixtures."

Section 90-4.02, "Materials," of the Standard Specifications is amended to read:

**90-4.02 Materials.—**Admixture materials shall be as specified in Section 90-2.04, "Admixture Materials."

Section 90-4.05, "Optional Use of Chemical Admixtures," of the Standard Specifications is amended to read:

**90-4.05 Optional Use of Chemical Admixtures.—**The Contractor will be permitted to use Type A or F, water-reducing; Type B, retarding; or Type D or G, water-reducing and retarding admixtures as described in ASTM Designation: C 494 to conserve cementitious material or to facilitate any concrete construction application subject to the following conditions:

When a water-reducing admixture or a water-reducing and retarding admixture is used, the cementitious material content specified or ordered may be reduced by a maximum of 5 percent by weight except that the resultant cementitious material content shall be not less than 470 pounds per cubic yard.

When a reduction in cementitious material content is made, the dosage of admixture used shall be the dosage used in determining approval of the admixture.

Section 90-4.07, "Optional Use of Air-entraining Admixtures," of the Standard Specifications is amended to read:

**90-4.07 Optional Use of Air-entraining Admixtures.—**When air-entrainment has not been specified or ordered by the Engineer, the Contractor will be permitted to use an air-entraining admixture to facilitate the use of any construction procedure or equipment provided that the average air content, as determined by California Test 504, of 3 successive tests does not exceed 4 percent and no single test value exceeds 5.5 percent. If the Contractor elects to use an air-entraining admixture in concrete for pavement, the Contractor shall so indicate at the time the Contractor designates the source of aggregate as provided in Section 40-1.015, "Cement Content."

Section 90-4.08, "Required Use of Mineral Admixtures," of the Standard Specifications is amended to read:

**90-4.08 Required Use of Mineral Admixtures.—**Unless otherwise specified, mineral admixture shall be combined with cement to make cementitious material for use in portland cement concrete.

The calcium oxide content of mineral admixtures shall not exceed 10 percent and the alkali content as $Na_2O$ shall not exceed 4 percent as determined by California Test 404.

The amounts of cement and mineral admixture used in cementitious material for portland cement concrete shall be sufficient to satisfy the minimum cementitious material content requirements specified in Section 90-1.01, "Description," or Section 90-4.05, "Optional Use of Chemical Admixtures," and shall conform to the following:

The minimum amount of cement shall not be less than 75 percent by weight of the specified minimum cementitious material content.

The minimum amount of mineral admixture to be combined with cement shall be determined using one of the following criteria:

A. When the calcium oxide content of a mineral admixture, measured in conformance with the requirements of ASTM Designation: C 618 and Section 90-2.04, "Admixture Materials," is equal to or less than 2 percent by weight, the amount of mineral admixture shall not be less than 15 percent by weight of the total amount of cementitious material to be used in the mix.
B. When the calcium oxide content of a mineral admixture, measured in conformance with the requirements of ASTM Designation: C 618 and Section 90-2.04, "Admixture Materials," is greater than 2 percent , the amount of mineral admixture shall not be less than 25 percent by weight of the total amount of cementitious material to be used in the mix.
C. When a mineral admixture is used, which conforms to the requirements for silica fume in Section 90-2.04, "Admixture Materials," is used, the amount of mineral admixture shall not be less than 10 percent by weight of the total amount of cementitious material to be used in the mix.

If more than the required amount of cementitious material is used, the balance of the additional cementitious material in the mix may be either cement, mineral admixture or a combination of both; however, the maximum amount of mineral admixture shall not exceed 35 percent by weight of the total amount of cementitious material to be used in the mix. Where Section 90-1.01, "Description," specifies a maximum cementitious content in pounds per cubic yard, the total weight of cement and mineral admixture per cubic yard shall not exceed the specified maximum cementitious material content.

Section 90-4.09, "Optional Use of Mineral Admixture," of the Standard Specifications is deleted.

Section 90-4.11, "Storage, Proportioning, and Dispensing of Mineral Admixtures," of the Standard Specifications is amended to read:

**90-4.11 Storage, Proportioning, and Dispensing of Mineral Admixtures.—**Mineral admixtures shall be protected from exposure to moisture until used. Sacked material shall be piled to permit access for tally, inspection and identification for each shipment.

Adequate facilities shall be provided to assure that mineral admixtures meeting the specified requirements are kept separate from other mineral admixtures in order to prevent any but the specified mineral admixtures from entering the work. Safe and suitable facilities for sampling mineral admixtures shall be provided at the weigh hopper or in the feed line immediately in advance of the hopper.

Mineral admixtures shall be incorporated into concrete using equipment conforming to the requirements for cement weigh hoppers, and charging and discharging mechanisms in ASTM Designation: C 94, in Section 90-5.03, "Proportioning," and in this Section 90-4.11.

When interlocks are required for cement and mineral admixture charging mechanisms by Section 90-5.03A, "Proportioning for Pavement," and cement and mineral admixtures are weighed cumulatively, their charging mechanisms shall be interlocked to prevent the introduction of mineral admixture until the weight of cement in the cement weigh hopper is within the tolerances specified in Section 90-5.02, "Proportioning Devices."

Mineral admixture used in concrete for exposed surfaces of like elements of a structure shall be from the same source and of the same percentage.

Section 90-5.02, "Proportioning Devices," of the Standard Specifications is amended to read:

**90-5.02 Proportioning Devices.—**All weighing, measuring or metering devices used for proportioning materials shall conform to the requirements in Section 9-1.01, "Measurement of Quantities," and this Section 90-5.02. In addition, any automatic weighing systems used shall comply with the requirements for automatic proportioning devices in Section 90-5.03A, "Proportioning for Pavement." These automatic devices shall be automatic to the extent that the only manual operation required for proportioning the aggregates, cement, and mineral admixture for one batch of concrete is a single operation of a switch or starter.

Proportioning devices shall be tested at the expense of the Contractor as frequently as the Engineer may deem necessary to insure their accuracy.

Weighing equipment shall be insulated against vibration or movement of other operating equipment in the plant. When the plant is in operation, the weight of each batch of material shall not vary from the weight designated by the Engineer by more than the tolerances specified herein.

Equipment for cumulative weighing of aggregate shall have a zero tolerance of ±0.5 percent of the designated total batch weight of the aggregate. For systems with individual weigh hoppers for the various sizes of aggregate, the zero tolerance shall be ±0.5 percent of the individual batch weight designated for each size of aggregate. Equipment for cumulative weighing of cement and mineral admixtures shall have a zero tolerance of ±0.5 percent of the designated total batch weight of the cement and mineral admixture. Equipment for weighing cement or mineral admixture separately shall have a zero tolerance of ±0.5 percent of their designated individual batch weights. Equipment for measuring water shall have a zero tolerance of ±0.5 percent of its designated weight or volume.

The weight indicated for any batch of material shall not vary from the preselected scale setting by more than the following:

A. Aggregate weighed cumulatively shall be within 1.0 percent of the designated total batch weight of the aggregate. Aggregates weighed individually shall be within 1.5 percent of their respective designated batch weights.
B. Cement shall be within 1.0 percent of its designated batch weight. When weighed individually, mineral admixture shall be within 1.0 percent of its designated batch weight. When mineral admixture and cement are permitted to be weighed cumulatively, cement shall be weighed first to within 1.0 percent of its designated batch weight, and the total for cement and mineral admixture shall be within 1.0 percent of the sum of their designated batch weights.
C. Water shall be within 1.5 percent of its designated weight or volume.

Each scale graduation shall be approximately 0.001 of the total capacity of the scale. The capacity of scales for weighing cement, mineral admixture, or cement plus mineral admixture and aggregates shall not exceed that of commercially available scales having single graduations indicating a weight not exceeding the maximum permissible weight variation above, except that no scale shall be required having a capacity of less than 1,000 pounds, with one-pound graduations.

Section 90-5.03, "Proportioning," of the Standard Specifications is amended to read:

**90-5.03 Proportioning.—**Proportioning shall consist of dividing the aggregates into the specified sizes, each stored in a separate bin, and combining them with cement, mineral admixture and water as provided in these specifications. Aggregates shall be proportioned by weight.

At the time of batching, all aggregates shall have been dried or drained sufficiently to result in a stable moisture content such that no visible separation of water from aggregate will take place during transportation from the proportioning plant to the point of mixing. In no event shall the free moisture content of the fine aggregate at the time of batching exceed 8 percent of its saturated, surface-dry weight.

Should separate supplies of aggregate material of the same size group, but of different moisture content or specific gravity or surface characteristics affecting workability, be available at the proportioning plant, withdrawals shall be made from one supply exclusively and the materials therein completely exhausted before starting upon another.

Bulk "Type IP (MS) Modified" cement, that conforms to the requirements in Section 90-2.01, "Portland Cement," shall be weighed in an individual hopper and shall be kept separate from the aggregates until the ingredients are released for discharge. Except as otherwise noted below, the cement hoppers may be attached to a separate scale for individual weighing. If the cement is weighed cumulatively, the cement shall be weighed before the other ingredients.

Bulk cement to be blended with mineral admixture for use in portland cement concrete for pavement and structures shall be proportioned by one of the following methods:

1. Bulk cement and mineral admixture shall be weighed in individual weigh-hoppers and shall be kept separate from each other and from the aggregates until the ingredients are released for discharge into the mixer. The weigh systems for the proportioning of the aggregate, the cement, and the mineral admixture shall be individual and distinct from all other weigh systems. Each weigh system shall be equipped with a hopper, a lever system, and a weight indicator to constitute an individual and independent material weighing device. The aggregate, the cement, and the mineral admixture shall be discharged into the mixer simultaneously.
2. Bulk cement and mineral admixture may be weighed in the same weigh hopper if the mix uniformity conforms to the requirements of Annex "A1, Concrete Uniformity Requirements," of ASTM Designation: C 94 as tested by the Contractor. The capability of the mixing methods and devices shall be established before starting production of portland cement concrete for contract work. Mix uniformity sampling and testing shall be done in the presence of the Engineer. The Engineer shall approve the mixing methods and devices as a supplement to California Test 109. The time between tests for mix uniformity testing shall be the same as that required by California Test 109 for portland cement concrete batch plant scale calibration.

The scale and weigh hopper for bulk weighing cement, mineral admixture, and cement plus mineral admixture shall be separate and distinct from the aggregate weighing equipment.

When the source of any aggregate is changed for concrete structures, the Contractor shall adjust the mix proportions and submit in writing to the Engineer a copy of the mix design before using such aggregates. When the source of any aggregate is changed for other concrete, the Engineer shall be allowed sufficient time to adjust the mix and such aggregates shall not be used until necessary adjustments are made.

For all batches with a volume of one cubic yard or more, the batching equipment shall conform to one of the following combinations:

A. Separate boxes and separate dial or beam scale and indicator for weighing each size of aggregate.
B. Single box and dial or multiple beam type scale indicator for all aggregates.
C. Single box or separate boxes and automatic weighing mechanism for all aggregates.

In order to check the accuracy of batch weights, the gross weight and tare weight of batch trucks, truck mixers, truck agitators, and non-agitating hauling equipment shall be determined when ordered by the Engineer. The equipment shall be weighed at the Contractor's expense on scales designated by the Engineer.

Section 90-5.03A, "Proportioning for Pavement," of the Standard Specifications is amended to read:

**90-5.03A Proportioning for Pavement.—**Aggregates and bulk cement, mineral admixture, and cement plus mineral admixture for use in pavement shall be proportioned by weight by means of automatic proportioning devices of approved type conforming to the requirements specified in this Section 90-5.03A.

The Contractor shall install and maintain in operating condition an electrically actuated moisture meter that will indicate, on a readily visible scale, changes in the moisture content of the fine aggregate as it is batched within a sensitivity of 0.5 percent by weight of the fine aggregate.

The batching of cement, mineral admixture, or cement plus mineral admixture and aggregate shall be interlocked so that a new batch cannot be started until all weigh hoppers are empty, the proportioning devices are within zero tolerance, and the discharge gates are closed. The interlock shall permit no part of the batch to be discharged until all aggregate hoppers and the cement and mineral admixture hoppers or the cement plus mineral admixture hopper are charged with weights which are within the tolerances specified in Section 90-5.02, "Proportioning Devices."

The discharge gate on the cement and mineral admixture hoppers or the cement plus mineral admixture hopper shall be designed to permit regulating the flow of cement, mineral admixture, or cement plus mineral admixture into the aggregate as directed by the Engineer.

When separate weigh boxes are used for each size of aggregate, the discharge gates shall permit regulating the flow of each size of aggregate as directed by the Engineer.

Material discharged from the several bins shall be controlled by gates or by mechanical conveyors. The means of withdrawal from the several bins, and of discharge from the weigh box, shall be interlocked so that not more than one bin can discharge at a time, and that the weigh box cannot be tripped until the required quantity from each of the

several bins has been deposited therein. Should a separate weigh box be used for each size of aggregate, all may be operated and discharged simultaneously.

When the discharge from the several bins is controlled by gates, each gate shall be actuated automatically so that the required weight is discharged into the weigh box, after which the gate shall automatically close and lock.

The automatic weighing system shall be designed so that all proportions required may be set on the weighing controller at the same time.

The third paragraph in Section 90-6.01, "General," of the Standard Specifications is amended to read:

All concrete shall be homogeneous and thoroughly mixed, and there shall be no lumps or evidence of undispersed cement, mineral admixture, or cement plus mineral admixture.

The third and fourth paragraphs in Section 90-6.02, "Machine Mixing," of the Standard Specifications are amended to read:

The batch shall be so charged into the mixer that some water will enter in advance of cementitious materials and aggregates. All water shall be in the drum by the end of the first one-fourth of the specified mixing time.

Cementitious materials shall be batched and charged into the mixer by means that will not result either in loss of cementitious materials due to the effect of wind, or in accumulation of cementitious materials on surfaces of conveyors or hoppers, or in other conditions which reduce or vary the required quantity of cementitious material in the concrete mixture.

The sixth paragraph in Section 90-6.02, "Machine Mixing," of the Standard Specifications is amended to read:

The total elapsed time between the intermingling of damp aggregates and all cementitious materials and the start of mixing shall not exceed 30 minutes.

The seventh and eighth paragraphs in Section 90-6.03, "Transporting Mixed Concrete," of the Standard Specifications are amended to read:

When a truck mixer or agitator is used for transporting concrete to the delivery point, discharge shall be completed within 1.5 hours, or before 250 revolutions of the drum or blades, whichever comes first, after the introduction of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 85° F., or above, a time less than 1.5 hours may be required.

When non-agitating hauling equipment is used for transporting concrete to the delivery point, discharge shall be completed within one hour after the addition of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 85° F., or above, the time between the introduction of cement to the aggregates and discharge shall not exceed 45 minutes.

The ninth and tenth paragraphs in Section 90-6.03, "Transporting Mixed Concrete," of the Standard Specifications are amended to read:

Each load of concrete delivered at the jobsite shall be accompanied by a ticket showing the mix identification number, non-repeating load number, date and time at which the materials were batched, the total amount of water (gallons) added to the load and for transit-mixed concrete, the reading of the revolution counter at the time the truck mixer is charged with cement. This ticket shall also show the actual scale weights (pounds) for the ingredients batched or the calculated portland cement concrete volume (cubic yards) calculated from actual scale weights. Theoretical or target batch weights shall not be used as a substitute for actual scale weights. When showing a calculated portland cement concrete volume on the delivery ticket, the Contractor shall maintain and have available a record of the following information for each batched load:

1. Mix identification number, specific to the contract.
2. Load number shall match the load number on the delivery ticket.
3. Date and time the load was batched.
4. Actual batch weight (pounds) for each ingredient.
5. Any water (gallons) added at the plant, in addition to the water proportioned for the batch.

When requested, the Contractor shall submit the recorded information for calculated portland cement concrete volumes to the Engineer. The information shall be provided in printed form, or if acceptable to the Engineer, data may be submitted in electronic media. Electronic media shall be presented in a tab delimited format on a 3.5-inch diskette with a capacity of at least 1.4 megabytes. Captured data, for the ingredients represented by each batch shall

be LFCR (one line, separate record) with allowances for sufficient fields to satisfy the amount of data required by these specifications.

Section 90-6.05, "Hand-Mixing," of the Standard Specifications is amended to read:

**90-6.05 Hand-Mixing.—**Hand-mixed concrete shall be made in batches not more than one-third cubic yard and shall be mixed on a watertight, level platform. The proper amount of coarse aggregate shall be measured in measuring boxes and spread on the platform and the fine aggregate shall be spread on this layer, the 2 layers being not more than one foot in total depth. On this mixture shall be spread the dry cement and mineral admixture and the whole mass turned no fewer than 2 times dry; then sufficient clean water shall be added, evenly distributed, and the whole mass again turned no fewer than 3 times, not including placing in the carriers or forms.

The second paragraph in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications is amended to read:

The amount of free water used in concrete shall not exceed 312 pounds per cubic yard, plus 20 pounds for each required 100 pounds of cementitious material in excess of 564 pounds per cubic yard.

The fourth paragraph in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications is amended to read:

Where there are adverse or difficult conditions which affect the placing of concrete, the above specified penetration and free water content limitations may be exceeded providing the Contractor is granted permission by the Engineer in writing to increase the cementitious material content per cubic yard of concrete. The increase in water and cementitious material shall be at a ratio not to exceed 30 pounds of water per added 100 pounds of cementitious material per cubic yard. The cost of additional cementitious material and water added under these conditions shall be at the Contractor's expense and no additional compensation will be allowed therefor.

Section 90-9.01, "General," of the Standard Specifications is amended to read:

**90-9.01 General.—**Concrete compressive strength requirements consist of a minimum strength which must be attained before various loads or stresses are applied to the concrete and, for concrete designated by strength, a minimum strength at the age of 28 days or at the age otherwise allowed in Section 90-1.01, "Description." The various strengths required are specified elsewhere or are shown on the plans.

The compressive strength of concrete will be determined from test cylinders which have been fabricated from concrete sampled in accordance with California Test 539. Test cylinders will be molded and initial field cured in accordance with California Test 540. Test cylinders will be cured and tested after receipt at the testing laboratory in accordance with California Test 521. A strength test shall consist of the average strength of 2 cylinders fabricated from material taken from a single load of concrete, except that, if any cylinder should show evidence of improper sampling, molding, or testing, that cylinder shall be discarded and the strength test shall consist of the strength of the remaining cylinder.

When concrete compressive strength is specified as a prerequisite to applying loads or stresses to a concrete structure or member, test cylinders for other than steam cured concrete will be cured in accordance with Method 1 of California Test 540. The compressive strength of concrete determined for these purposes will be evaluated on the basis of individual tests.

When concrete is designated by 28-day compressive strength rather than by cementitious material content, the concrete strength to be used as a basis for acceptance of other than steam cured concrete will be determined from cylinders cured in conformance with Method 1 of California Test 540. If the result of a single compressive strength test at the maximum age specified or allowed is below the specified strength but is 95 percent or more of the specified strength, the Contractor shall, at the Contractor's expense, make corrective changes, subject to approval of the Engineer, in the mix proportions or in the concrete fabrication procedures, before placing additional concrete, and shall pay to the State $10.00 for each in-place cubic yard of concrete represented by the deficient test. If the result of a single compressive strength test at the maximum age specified or allowed is below 95 percent of the specified strength, but is 85 percent or more of the specified strength, the Contractor shall make the corrective changes specified above, and shall pay to the State $15.00 for each in place cubic yard of concrete represented by the deficient test. In addition, such corrective changes shall be made when the compressive strength of concrete tested at 7 days indicates, in the judgment of the Engineer, that the concrete will not attain the required compressive strength at the maximum age specified or allowed. All concrete represented by a single test which indicates a compressive strength of less than 85 percent of the specified 28-day compressive strength will be rejected in accordance with the provisions in Section 6-1.04, "Defective Materials."

If the test result indicates that the compressive strength at the maximum curing age specified or allowed is below the specified strength, but 85 percent or more of the specified strength, payments to the State as required above shall be made, unless the Contractor, at the Contractor's expense, obtains and submits evidence acceptable to the Engineer that the strength of the concrete placed in the work meets or exceeds the specified 28-day compressive strength. If the test result indicates a compressive strength at the maximum curing age specified or allowed below 85 percent, the concrete represented by that test will be rejected, unless the Contractor, at the Contractor's expense, obtains and submits evidence acceptable to the Engineer that the strength and quality of the concrete placed in the work are acceptable. If the evidence consists of tests made on cores taken from the work, the cores shall be obtained and tested in accordance with the specifications of ASTM Designation: C 42.

No single compressive strength test shall represent more than 300 cubic yards.

When a precast concrete member is steam cured, the compressive strength of the concrete will be determined from test cylinders which have been handled and stored in accordance with Method 3 of California Test 540. The compressive strength of steam cured concrete will be evaluated on the basis of individual tests representing specific portions of production. When the concrete is designated by 28-day compressive strength rather than by cementitious material content, the concrete shall be considered to be acceptable whenever its compressive strength reaches the specified 28-day compressive strength provided that strength is reached in not more than the maximum number of days specified or allowed after the member is cast.

When concrete is specified by compressive strength, prequalification of materials, mix proportions, mixing equipment, and procedures proposed for use, will be required prior to placement of the concrete. Prequalification shall be accomplished by the submission of acceptable certified test data or trial batch reports by the Contractor. Prequalification data shall be based on the use of materials, mix proportions, mixing equipment, procedures, and size of batch proposed for use in the work.

Certified test data, in order to be acceptable, must indicate that not less than 90 percent of at least 20 consecutive tests exceed the specified strength at the maximum number of cure days specified or allowed, and none of those tests are less than 95 percent of specified strength. Strength tests included in the data shall be the most recent tests made on concrete of the proposed mix design and all shall have been made within one year of the proposed use of the concrete.

Trial batch test reports, in order to be acceptable, must indicate that the average compressive strength of 5 consecutive concrete cylinders, taken from a single batch, at not more than 28 days (or the maximum age allowed) after molding shall be at least 600 pounds per square inch greater than the specified 28-day compressive strength, and no individual cylinder shall have a strength less than the specified strength at the maximum age specified or allowed. Data contained in the report shall be from trial batches which were produced within one year of the proposed use of specified strength concrete in the project. Whenever air-entrainment is required, the air content of trial batches shall be equal to or greater than the air content specified for the concrete without reduction due to tolerances.

All tests shall be performed in accordance with either the appropriate California Test methods or the comparable ASTM test methods. All equipment employed in testing shall be in good condition and shall be properly calibrated. If the tests are performed during the life of the contract, the Engineer shall be notified sufficiently in advance of performing the tests in order to witness the test procedures.

The certified test data and trial batch test reports shall include the following information:

A. Date of mixing.
B. Mixing equipment and procedures used.
C. The size of batch in cubic yards and the weight, type and source of all ingredients used.
D. Penetration of the concrete.
E. The air content of the concrete if an air-entraining admixture is used.
F. The age at time of testing and strength of all concrete cylinders tested.

All certified test data and trial batch test reports shall be signed by an official of the firm which performed the tests.

When approved by the Engineer, concrete from trial batches may be used in the work at locations where concrete of a lower quality is required and the concrete will be paid for as the type or class of concrete required at that location.

After materials, mix proportions, mixing equipment, and procedures for concrete have been prequalified for use, additional prequalification by testing of trial batches will be required prior to making any changes which, in the judgment of the Engineer, could result in a lowering of the strength of the concrete below that specified.

The Contractor's attention is directed to the time required to test trial batches and the Contractor shall be responsible for production of trial batches at a sufficiently early date so that the progress of the work is not delayed.

When precast concrete members are manufactured at the plant of an established manufacturer of precast concrete members, the mix proportions of the concrete shall be determined by the Contractor, and a trial batch and prequalification of the materials, mix proportions, mixing equipment, and procedures will not be required.

Section 90-10.02A, "Portland Cement," of the Standard Specifications is renamed "Cementitious Material" and amended to read:

**90-10.02A Cementitious Material.—**Cementitious material shall conform to the provisions in Section 90-1.01, "Description." Compressive strength requirements consist of a minimum strength which must be attained before various loads or stresses are applied to the concrete and, for concrete designated by strength, a minimum strength at the age of 28 days or at the age otherwise allowed in Section 90-1.01, "Description." The various strengths required are specified elsewhere or are shown on the plans.

The fifth paragraph in Section 90-10.02B, "Aggregate," of the Standard Specifications is deleted.
Section 90-10.03, "Production," of the Standard Specifications is amended to read:

**90-10.03 Production.—**Cementitious material, water, aggregate, and admixtures shall be stored, proportioned, mixed, transported, and discharged in conformance with recognized standards of good practice, which will result in concrete that is thoroughly and uniformly mixed, that is suitable for the use intended, and which conforms to requirements specified herein. "Recognized standards of good practice" are outlined in various industry publications such as are issued by American Concrete Institute, AASHTO, or California Department of Transportation.

The cementitious material content of minor concrete shall conform to the provisions in Section 90-1.01, "Description."

The amount of water used shall result in a consistency of concrete conforming to the provisions in Section 90-6.06, "Amount of Water and Penetration." Additional mixing water shall not be incorporated into the concrete during hauling or after arrival at the delivery point, unless authorized by the Engineer.

Discharge of ready-mixed concrete from the transporting vehicle shall be made while the concrete is still plastic and before any stiffening occurs. An elapsed time of 1.5 hours (one hour in non-agitating hauling equipment), or more than 250 revolutions of the drum or blades, after the introduction of the cementitious material to the aggregates, or a temperature of concrete of more than 90° F. will be considered as conditions contributing to the quick stiffening of concrete. The Contractor shall take whatever action is necessary to eliminate quick stiffening, except that the addition of water will not be permitted.

The required mixing time in stationary mixers shall be not less than 50 seconds nor more than 5 minutes.

The minimum required revolutions at mixing speed for transit-mixed concrete shall be not less than that recommended by the mixer manufacturer, and shall be increased, if necessary, to produce thoroughly and uniformly mixed concrete.

Each load of ready-mixed concrete shall be accompanied by a ticket which shall be delivered to the Engineer at the discharge location of the concrete, unless otherwise directed by the Engineer. The ticket shall be clearly marked with the date and time of day when the load left the batching plant and, if hauled in truck mixers or agitators, the time the mixing cycle started.

A Certificate of Compliance in accordance with the provisions in Section 6-1.07, "Certificates of Compliance," shall be furnished to the Engineer, prior to placing minor concrete from a source not previously used on the contract, stating that minor concrete to be furnished meets all contract requirements, including minimum cementitious material content specified.

The third and fourth paragraphs in Section 90-11.02, "Payment," of the Standard Specifications are amended to read:

Should the Engineer order the Contractor to incorporate any admixtures in the concrete when their use is not required by these specifications or the special provisions, furnishing the admixtures and adding them to the concrete will be paid for as extra work as provided in Section 4-1.03D.

Should the Contractor use admixtures as permitted under Sections 90-4.05, "Optional Use of Chemical Admixtures;" or 90-4.07, "Optional Use of Air-entraining Admixtures;" or should the Contractor request and obtain permission to use other admixtures for the Contractor's benefit, the Contractor shall furnish those admixtures and incorporate them in the concrete at the Contractor's expense and no additional compensation will be allowed therefor.

**8-2.02 CEMENT AND WATER CONTENT**

Except for concrete listed below, all concrete which is designated as Class A and all concrete for use in structures shall contain not less than 615 pounds of cement per cubic yard and shall be air-entrained as provided in Section 90-4,

"Admixtures," of the Standard Specifications. The air content at time of mixing and prior to placing shall be 3 percent ± one percent.

1. Concrete designated by 28-day compressive strength.
2. Concrete for piling.

The amount of free water used in concrete shall not exceed 340 pounds per cubic yard, plus 20 pounds for each required 100 pounds of cement in excess of 615 pounds per cubic yard.

## SECTION 8-3. WELDING

### 8-3.01 WELDING ELECTRODES

Flux core welding electrodes conforming to the requirements of AWS A5.20 E6XT-4 or E7XT-4 shall not be used to perform any type of welding for this project.

### 8-3.02 WELDING QUALITY CONTROL

Welding quality control shall conform to the requirements in the AWS welding codes, the Standard Specifications and these special provisions.

Welding quality control shall apply when any work is welded in conformance with the provisions in 1) Section 49, "Piling," 2) Section 52, "Reinforcement," or 3) Section 55, "Steel Structures," of the Standard Specifications.

Welding quality control, as specified herein, shall not apply when welding is performed at a permanent fabrication facility that is certified under the AISC Quality Certification Program, Category III, Major Steel Bridges.

Wherever reference is made to the following AWS welding codes in the Standard Specifications, on the plans or in these special provisions, the year of adoption for these codes shall be as listed:

| AWS Code | Year of Adoption |
|---|---|
| D1.1 | 1996 |
| D1.4 | 1992 |
| D1.5 | 1995 |
| D1.5<br>(metric only) | 1996 |

All requirements of the AWS welding codes shall apply unless specified otherwise in the Standard Specifications, on the plans or in these special provisions. Wherever the abbreviation AWS is used, it shall be equivalent to the abbreviations ANSI/AWS or ANSI/AASHTO/AWS.

The welding of all fracture critical members (FCMs) shall conform to the provisions specified in the Fracture Control Plan (FCP) and herein.

The Contractor shall designate in writing a welding Quality Control Manager (QCM). The QCM shall be responsible directly to the Contractor for the quality of welding, including materials and workmanship, performed by the Contractor and all subcontractors.

The QCM shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project. The QCM may be an employee of the Contractor.

No welding inspection personnel or nondestructive testing (NDT) firms to be used in the work shall be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project.

The QCM shall be the sole individual responsible to the Contractor for submitting and receiving all correspondence and required submittals and reports regarding welding to and from the Engineer.

Prior to submitting the Quality Control Plan (QCP) required herein, a pre-welding meeting shall be held between the Engineer, Contractor and any welding subcontractors to be used in the work to discuss the requirements for the QCP.

Prior to performing any welding, the Contractor shall submit to the Engineer, in accordance with the provisions of Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, 3 copies of a separate QCP for each item of work for which welding is to be performed. As a minimum, each QCP shall include the following:

1. The name of the welding firm and the NDT firm to be used;
2. A manual prepared by the NDT firm that shall include equipment, testing procedures, code of safe practices, the Written Practice of the NDT firm, and the names, qualifications and documentation of certifications for all personnel to be used;
3. The name of the QCM and the names, qualifications and documentation of certifications for all Quality Control (QC) Inspectors and Assistant Quality Control Inspectors to be used;
4. An organizational chart showing all QC personnel and their assigned QC responsibilities;
5. The methods and frequencies for performing all required quality control procedures, including QC inspection forms to be used, as required by the specifications including:

   (a) all visual inspections;
   (b) all NDT including radiographic geometry, penetrameter and shim selection, film quality, film processing, radiograph identification and marking system, and film interpretation and reports; and
   (c) calibration procedures and calibration frequency for all NDT equipment;

6. A system for the identification and tracking of all welds, NDT and any required repairs, and a procedure for the reinspection of any repaired welds. The system shall have provisions for 1) permanently identifying each weld and the person who performed the weld and 2) placing all identification and tracking information on each radiograph;
7. Standard procedures for performing noncritical repair welds. Noncritical repair welds are defined as welds to deposit additional weld beads or layers to compensate for insufficient weld size and to fill limited excavations that were performed to remove unacceptable edge or surface discontinuities, rollover or undercut. The depth of these excavations shall not exceed 65 percent of the specified weld size;
8. The welding procedure specification (WPS), including documentation of all supporting Procedure Qualification Record (PQR) tests performed, and the name of the testing laboratory who performed the tests, to verify the acceptability of the WPS. The submitted WPS shall be within the allowable period of effectiveness;

9. Documentation of all certifications for welders for each weld process and position that will be used. Certifications shall list the electrodes used, test position, base metal and thickness, tests performed, and the witnessing authority. All certifications shall be within the allowable period of effectiveness; and
10. One copy each of all AWS welding codes and the FCP which are applicable to the welding to be performed. These codes and the FCP shall become the permanent property of the Department.

The Engineer shall have 10 working days to review the QCP submittal after a complete plan has been received. No welding shall be performed until the QCP is approved in writing by the Engineer. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the QCP, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

An amended QCP or addendum shall be submitted to, and approved in writing by the Engineer, for any proposed revisions to the approved QCP. An amended QCP or addendum will be required for any revisions to the QCP, including but not limited to a revised WPS, additional welders, changes in NDT firms or procedures, QC or NDT personnel, or updated systems for tracking and identifying welds. The Engineer shall have 3 working days to complete the review of the amended QCP or addendum. Work that is affected by any of the proposed revisions shall not be performed until the amended QCP or addendum has been approved. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the amended QCP or addendum, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

After final approval of the QCP, amended QCP or addendum, the Contractor shall submit to the Engineer 7 copies each of these approved documents.

A daily production log for welding shall be kept by the QCM for each day that welding is performed. The log shall clearly indicate the locations of all welding, and shall include the welders' names, amount of welding performed, any problems or deficiencies discovered, and any testing or repair work performed, at each location. The daily report from each Quality Control Inspector shall also be included in the log.

It is expressly understood that the Engineer's approval of the Contractor's QCP shall not relieve the Contractor of any responsibility under the contract for the successful completion of the work in conformity with the requirements of the plans and specifications. The Engineer's approval shall not constitute a waiver of any of the requirements of the plans and specifications nor relieve the Contractor of any obligation thereunder, and defective work, materials and equipment may be rejected notwithstanding approval of the QCP.

The following items shall be included in a Welding Report that is to be submitted to the Engineer within 7 days following the performance of any welding:

1. Reports of all visual weld inspections and NDT;
2. Radiographs and radiographic reports, and other required NDT reports;
3. Documentation that the Contractor has evaluated all radiographs and other nondestructive tests, corrected all rejectable deficiencies, and all repaired welds have been reexamined by the required NDT and found acceptable; and
4. Daily production log.

All reports regarding NDT, including radiographs, shall be signed by both NDT technician and the person that performed the review, and then submitted directly to the QCM for review and signature prior to submittal to the Engineer. Corresponding names shall be clearly printed or typewritten next to all signatures.

The Engineer shall review the Welding Report to determine if the Contractor is in conformance with the QCP. Except for steel piling, the Engineer shall be allowed 7 days to review the report and respond in writing after a complete Welding Report has been received. The review time for steel piling shall be as specified in "Piling" elsewhere in these special provisions. Prior to receiving notification from the Engineer of the Contractor's conformance with the QCP, the Contractor may encase in concrete or cover any welds for which a Welding Report has been submitted. However, should the Contractor elect to encase or cover those welds prior to receiving notification from the Engineer, it is expressly understood that the Contractor shall not be relieved of the responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Any material not conforming to these requirements will be subject to rejection. Should the Contractor elect to wait to encase or cover any welds pending notification by the Engineer, and should the Engineer fail to complete the review and provide notification within this time allowance, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in notification, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Sections 6.1.1 through 6.1.3.3 of AWS D 1.1, Sections 7.1.1 and 7.1.2 of AWS D 1.4, and Sections 6.1.1.1 through 6.1.3.3 of AWS D 1.5 are replaced with the following:

Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing prior to welding, during welding and after welding as specified in this section and additionally as necessary to ensure that materials and workmanship conform to the requirements of the contract documents.

The Quality Control (QC) Inspector shall be the duly designated person who performs inspection, testing, and quality matters for all welding.

Quality Assurance (QA) is the prerogative of the Engineer. The QA Inspector is the duly designated person who acts for and on behalf of the Engineer.

All QC Inspectors shall be responsible for quality control acceptance or rejection of materials and workmanship, and shall be currently certified as AWS Certified Welding Inspectors (CWI) in accordance with the provisions of AWS QC1, "Standard and Guide for Qualification of Welding Inspectors."

The QC Inspector may be assisted by an Assistant QC Inspector provided that this individual is currently certified as an AWS Certified Associate Welding Inspector (CAWI) in accordance with the provisions of AWS QC1, "Standard and Guide for Qualification of Welding Inspectors," or has equivalent qualifications. The QC Inspector shall monitor the Assistant QC Inspector's work, and shall be responsible for signing all reports.

When the term "Inspector" is used without further qualification, it shall refer to the QC Inspector.

Section 6.14.7, "Personnel Qualification," of AWS D 1.1, Section 7.7.6, "Personnel Qualification," of AWS D 1.4 and Section 6.1.3.4, "Personnel Qualification," of AWS D 1.5 are amended to read:

Personnel performing NDT shall be qualified in accordance with the current edition of the American Society for Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A and the Written Practice of the NDT firm. Only individuals who are 1) qualified for NDT Level II, or 2) Level III technicians who have been directly certified by the ASNT and are authorized to perform the work of Level II technicians, shall perform NDT, review the results, and prepare the written reports.

Section 6.5.4, "Scope of Examination," of AWS D 1.1 and Section 7.5.4 of AWS D 1.4 are amended to read:

The QC Inspector shall inspect and approve the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code and the approved WPS are met.

Section 6.5.4 of AWS D 1.5 is amended to read:

The QC Inspector shall inspect and approve the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code and the approved WPS are met. The QC Inspector shall examine the work to make certain that it meets the requirements of section 3 and 9.21. The size and contour of welds shall be measured using suitable gages. Visual inspection for cracks in welds and base metal, and for other discontinuities should be aided by strong light magnifiers, or such other devices as may be helpful. Acceptance criteria different from those specified in this code may be used when approved by the Engineer.

The Engineer shall have the authority to verify the qualifications or certifications of any welder, Quality Control Inspector, or NDT personnel to specified levels by retests or other means.

A sufficient number of QC Inspectors shall be provided to ensure continuous inspection when any welding is being performed. Continuous inspection, as a minimum, shall include (1) having QC Inspectors continually present on all shifts when any welding is being performed, or (2) having a QC Inspector within such close proximity of all welding operations that inspections by the QC Inspector of each operation, at each welding location, shall not lapse for a period exceeding 30 minutes.

Inspection and approval of the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder shall be documented by the QC Inspector on a daily basis for each day that welding is performed.

The QC Inspector shall provide reports to the QCM on a daily basis for each day that welding is performed.

Except for noncritical weld repairs, base metal repairs, or any other type of repairs not submitted in the QCP, the Engineer shall be notified immediately in writing when any welding problems or deficiencies are discovered and also of the proposed repair procedures to correct them. The Engineer shall have 5 working days to review these procedures. No remedial work shall begin until the repair procedures are approved in writing by the Engineer. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the proposed repair procedures, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

When joint details that are not prequalified by the applicable AWS codes are proposed for use in the work, all welders using these details shall perform a qualification test plate using the approved WPS variables and the joint detail to be used in production. The test plate shall be the maximum thickness to be used in production. The test plate shall be mechanically or radiographically tested as directed by the Engineer. Mechanical and radiographic testing and acceptance criteria shall be as specified in the applicable AWS codes.

The period of effectiveness for a welder's or welding operator's qualification shall be a maximum of 3 years for the same weld process, welding position, and weld type. A valid qualification at the beginning of work on a contract will be acceptable for the entire period of the contract, as long as the welder's work remains satisfactory.

All qualification tests for welders, welding operators, and WPSs used in welding operations will be witnessed by the Engineer or an independent third party acceptable to the Engineer.

Section 6.6.5, "Nonspecified Nondestructive Testing Other Than Visual," of AWS D 1.1, Section 6.6.5 of AWS D 1.4 and Section 6.6.5 of AWS D 1.5 shall not apply.

For any welding, the Engineer may direct the Contractor to perform NDT that is in addition to the visual inspection or NDT specified in the AWS welding codes, in the Standard Specifications or in these special provisions. Additional NDT required by the Engineer, will be paid for as extra work in accordance with Section 4-1.03D, "Extra Work," of the Standard Specifications. Should any welding deficiencies be discovered by this additional NDT, the cost of the testing will not be paid for as extra work, and shall be at the Contractor's expense.

All required repair work to correct welding deficiencies, whether discovered by the required visual inspection or NDT, or by additional NDT directed by the Engineer, and any associated delays or expenses caused to the Contractor by performing these repairs, shall be at the Contractor's expense.

At the completion of all welding, the QCM shall sign and furnish to the Engineer, a certificate of compliance in accordance with Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each item of work for which welding was performed. The certificate shall state that all of the materials and workmanship incorporated in the work, and all required tests and inspections of this work, have been performed in accordance with the details shown on the plans and the provisions of the Standard Specifications and these special provisions.

Full compensation for conforming to all of the requirements of this section, Welding Quality Control, shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

## SECTION 9. DESCRIPTION OF BRIDGE WORK

The bridge work to be done consists, in general, of constructing seismic retrofit on the following structures, as shown on the plans:

N75-N5 Connector Overcrossing
(Bridge No. 57-912G)

A 22-span precast, prestressed concrete I-girder bridge, approximately 2,288 feet long.

N75-S5 Connector Overcrossing
(Bridge No. 57-847G)

An 8-span precast, prestressed concrete I-girder bridge, approximately 745 feet long.

Dewey Street Pedestrian Overcrossing
(Bridge No. 57-856)

A cantilever, cast-in-place, reinforced concrete slab structure.

S5-S75 Connector Overcrossing
(Bridge No. 57-939H)

A ramp structure consisting of 3 precast, prestressed concrete I-girder bridges totaling 20 spans.

N5-S75 Connector Overcrossing
(Bridge No. 57-846G)

A 9-span structure consisting of 5-spans of precast, prestressed concrete I-girder and 4 four spans of cast-in-place, prestressed concrete box girder.

## SECTION 10. CONSTRUCTION DETAILS

## SECTION 10-1. GENERAL

### 10-1.01 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

The uppermost layer of new pavement shall not be placed until all underlying conduits and loop detectors have been installed.

Attention is directed to “Art Protection Plan,” of these special provisions.

The Contractor shall request control staking for stage construction areas. After the staking is completed the Contractor shall install the temporary fence for that area.

Soundwall construction shall be completed prior to the Contractor beginning work in the Route 5 median.

Prior to working on columns with art work or murals, the Contractor shall demonstrate the effectiveness of the protective measures on 3 columns, Bents H52, H53, and H54.

Prior to commencing work on Bent H33, the Contractor shall complete all work on bent R33, the Utility work on Bent 33 as per “Obstructions” and the waterline relocation work as shown on the “Mechanical Plans”. Work on Bent R33 and H33 shall be completed prior to commencing work on Bents R34 through H37.

The first order of work in Chicano Park shall be the installation of the playground equipment in the Tiny Tots play area and placing of the rubberized surfacing as shown on the plans.

Park restrooms may only be closed during Stage 2. The Contractor shall install 4 portable toilets while the park restrooms are closed to the public.

Construction in the 6 park areas of Chicano Park shall be completed in the order shown on the plans. The Contractor will not be permitted to start construction in the next park area until all the structure work in the existing park area is completed and only 3 weeks of landscaping work remains.

The Contractor shall install temporary fence around each Chicano Park area prior to commencement of work in that area.

The Contractor shall give the Engineer 30 days written notice prior to commencing work on Bents R34 through R37.

The entrance gate at Bent R33 shall remain operational at all times during Stage 1. All others may be closed.

Night work will not be allowed in the following areas:

a. In Area 1: Bents 42 and 43.
b. In Area 5a: Bents 43 thru 47.
c. In Area 6: Bents 38 thru 41.
d. In the area of Bents 34 thru 37.

All work on Bents H36 and H37 shall be performed when the Mercado Daycare is closed for summer break. Summer break normally is June through August.

If the Contractor performs night work in Area 2a, the night work shall commence after 10:00 p.m. and end by 08:00 a.m. the following morning.

During working hours the pedestrian bridge may be closed, at all other times the bridge is to remain open and accessible to the public. The Contractor shall sign the pedestrian bridge as closed and direct the public to use Crosby Street to cross under the freeway. Lighting on the pedestrian bridge shall be operational when the bridge is accessible to the public.

Public access to the Kiva and Kiosko in Chicano Park shall be maintained at all times.

Work in the park areas shall be suspended on the following dates:

a. Chicano Park Day - Work shall be suspended from the Monday prior to Chicano Park Day to the following Monday. Chicano Park Day is normally celebrated during the third weekend of April. The Contractor shall vacate the Chicano Park areas, except as required under “Turf (Sod)” elsewhere in these special provisions, prior to Chicano Park Day with no signs of construction inside of the park areas visible to the public.
b. March 21 and 30, May 5, September 16 and November 1.

Attention is directed to "Maintaining Traffic" and "Temporary Pavement Delineation" of these special provisions and to the stage construction sheets of the plans.

The work shall be performed in conformance with the stages of construction shown on the plans. Nonconflicting work in subsequent stages may proceed concurrently with work in preceding stages unless otherwise prohibited in these special provisions, provided satisfactory progress is maintained in said preceding stages of construction.

In each stage, after completion of the preceding stage, the first order of work shall be the removal of existing pavement delineation as directed by the Engineer. Pavement delineation removal shall be coordinated with new delineation so that lane lines are provided at all times on traveled ways open to public traffic.

Before obliterating any pavement delineation that is to be replaced on the same alignment and location, as determined by the Engineer, such pavement delineation shall be referenced by the Contractor, with a sufficient number of control points to reestablish the alignment and location of the new pavement delineation. The references shall also include the limits or changes in striping pattern, including one- and two-way barrier lines, limit lines, crosswalks and other pavement markings. Full compensation for referencing pavement delineation shall be considered as included in the contract prices paid for new pavement delineation and no additional compensation will be allowed therefor.

When traffic is moved from an established path to a new path and pavement delineation changes are required, all material and equipment needed for new delineation shall be at the site of the work before any shift of traffic is undertaken. The equipment shall be in good working condition.

The Contractor shall place temporary railing (Type K), traffic plastic drums and temporary crash cushion modules, as shown on the plans, before beginning any work shown to be performed behind temporary railing (Type K) and temporary crash cushion modules. Temporary crash cushion modules at falsework shall not be removed until such removal is approved by the Engineer.

The Contractor shall furnish the Engineer with a statement from the vendor that the order for the plants required for this contract, including inspection plants, has been received and accepted by the vendor. The statement shall be furnished not less than 60 days prior to planting the plants. The statement from the vendor shall also include the names, sizes, and quantities of plants ordered and the anticipated date of delivery.

The Contractor shall place orders for replacement plants at the appropriate time with the vendor so that roots of the replacement plants are not in a root-bound condition.

Attention is directed to the requirements specified under "Irrigation Systems Functional Test" elsewhere in these special provisions, regarding restrictions for planting operations.

Unless otherwise shown on the plans or specified in these special provisions, conduits to be jacked or drilled or installed by open trench for water line crossovers and sprinkler control crossovers shall be installed prior to the installation of other pipe supply lines.

Clearing, grubbing and earthwork operations shall not be performed in areas where existing irrigation facilities are to remain, until existing irrigation facilities have been checked for proper operation as specified under "Highway Planting and Irrigation Systems" elsewhere in these special provisions.

**10-1.02 WATER POLLUTION CONTROL**

Water pollution control work shall conform to the requirements in Section 7-1.01G, "Water Pollution," of the Standard Specifications and these special provisions.

This project shall conform to the requirements of Local Permit No. CAS029998 issued by the San Diego Regional Water Quality Control Board. This Local Permit, hereafter referred to as the "Permit," regulates storm water discharges associated with construction activities.

Water pollution control work shall conform to the requirements in the Construction Contractor's Guide and Specifications of the Caltrans Storm Water Quality Handbooks, dated April 1997, and addenda thereto issued up to and including the date of advertisement of the project, hereafter referred to as the "Handbook". Copies of the Handbook may be obtained from the Department of Transportation, Material Operations Branch, Publication Distribution Unit, 1900 Royal Oaks Drive, Sacramento, California 95815, Telephone: (916) 445-3520.

Copies of the Handbook and the Permit are also available for review at Caltrans District Office, District Construction Office-Administration, 2829 Juan Street, San Diego, California 92110.

The Contractor shall become fully informed of and comply with the applicable provisions of the Handbook, Permit and Federal, State and local regulations that govern the Contractor's operations and storm water discharges from both the project site and areas of disturbance outside the project limits during construction. The Contractor shall maintain a copy of the Permit at the project site and shall make the Permit available during construction activities.

Unless arrangements for disturbance of areas outside the project limits are made by the Department and made part of the contract, it is expressly agreed that the Department assumes no responsibility to the Contractor or property owner whatsoever with respect to any arrangements made between the Contractor and property owner to allow disturbance of areas outside the project limits.

The Contractor shall be responsible for the costs and for any liability imposed by law as a result of the Contractor’s failure to comply with the requirements set forth in this section "Water Pollution Control", including but not limited to, compliance with the applicable provisions of the Handbook, Permit and Federal, State and local regulations. For the purposes of this paragraph, costs and liabilities include, but are not limited to, fines, penalties and damages whether assessed against the State or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act.

In addition to any remedy authorized by law, so much of the money due the Contractor under the contract that shall be considered necessary by the Department may be retained by the State of California until disposition has been made of the costs and liabilities.

The retention of money due the Contractor shall be subject to the following:

1. The Department will give the Contractor 30 days notice of its intention to retain funds from any partial payment which may become due to the Contractor prior to acceptance of the contract. Retention of funds from any payment made after acceptance of the contract may be made without prior notice to the Contractor.
2. No retention of additional amounts out of partial payments will be made if the amount to be retained does not exceed the amount being withheld from partial payments pursuant to Section 9-1.06, "Partial Payments," of the Standard Specifications.
3. If the Department has retained funds and it is subsequently determined that the State is not subject to the costs and liabilities in connection with the matter for which the retention was made, the Department shall be liable for interest on the amount retained at the legal rate of interest for the period of the retention.

Conformance with the requirements of this section "Water Pollution Control" shall not relieve the Contractor from the Contractor's responsibilities, as provided in Section 7-1.11, "Preservation of Property," and Section 7-1.12, "Responsibility for Damage," of the Standard Specifications.

The Contractor shall, at reasonable times, allow authorized agents of the California Regional Water Quality Control Board, State Water Resources Control Board, U. S. Environmental Protection Agency and local storm water management agency, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the construction site and the Contractor's facilities pertinent to the work;
2. Have access to and copy any records that must be kept as specified in the Permit;
3. Inspect the construction site and related soil stabilization practices and sediment control measures; and
4. Sample or monitor for the purpose of ensuring compliance with the Permit.

The Contractor shall notify the Engineer immediately upon request from regulatory agencies to enter, inspect, sample, monitor or otherwise access the project site or the Contractor's records.

**STORM WATER POLLUTION PREVENTION PLAN PREPARATION, APPROVAL AND UPDATES**.—As part of the water pollution control work, a Storm Water Pollution Prevention Plan, hereafter referred to as the "SWPPP," is required for this contract. The SWPPP shall conform to the requirements in Section 7-1.01G, "Water Pollution," of the Standard Specifications, the requirements in the Handbook, the requirements of the Permit and these special provisions. Upon the Engineer's approval of the SWPPP, the SWPPP shall be deemed to fulfill the requirements of Section 7-1.01G, "Water Pollution," of the Standard Specifications for development and submittal of a Water Pollution Control Program.

No work having potential to cause water pollution, as determined by the Engineer, shall be performed until the SWPPP has been approved by the Engineer.

Within 30 days after the approval of the contract, the Contractor shall submit 3 copies of the SWPPP to the Engineer. The Contractor shall allow 7 days for the Engineer to review the SWPPP. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the SWPPP within 7 days of receipt of the Engineer’s comments and shall allow 7 days for the Engineer to review the revisions. Upon the Engineer’s approval of the SWPPP, 3 additional copies of the SWPPP, incorporating the required changes, shall be submitted to the Engineer. In order to allow construction activities to proceed, the Engineer may conditionally approve the SWPPP while minor revisions are being completed.

The objectives of the SWPPP shall be to identify pollution sources that may adversely affect the quality of storm water discharges associated with the project and to identify, construct, implement and maintain water pollution control measures, hereafter referred to as control measures, to reduce to the extent feasible pollutants in storm water discharges from the construction site both during and after construction is completed under this contract.

The SWPPP shall incorporate control measures in the following categories:

1. Soil stabilization practices;
2. Sediment control practices;
3. Sediment tracking control practices;
4. Wind erosion control practices; and
5. Non-storm water management and waste management and disposal control practices.

Specific objectives and minimum requirements for each category of control measures are contained in the Handbook.

The Contractor shall consider the objectives and minimum requirements presented in the Handbook for each of the above categories. When minimum requirements are listed for any category, the Contractor shall incorporate into the SWPPP and implement on the project, one or more of the listed minimum controls required in order to meet the pollution control objectives for the category. In addition, the Contractor shall consider other control measures presented in the Handbook and shall incorporate into the SWPPP and implement on the project the control measures necessary to meet the objectives of the SWPPP. The Contractor shall document the selection process in accordance with the procedure specified in the Handbook.

The SWPPP shall include, but not be limited to, the following items as described in the Handbook and Permit:

1. Source Identification;
2. Erosion and Sediment Controls;
3. Non-Storm Water Management;
4. Waste Management and Disposal;
5. Maintenance, Inspection and Repair;
6. Training;
7. List of Contractors and Subcontractors;
8. Post-Construction Storm Water Management;
9. Preparer;
10. A copy of the Notice of New Construction (NONC) submitted by the Department for this project;
11. Copy of the local permit;
12. BMP Consideration Checklist;
13. SWPPP Checklist;
14. Schedule of Values; and
15. Water Pollution Control Drawings.

The Contractor shall amend the SWPPP, graphically and in narrative form, whenever there is a change in construction activities or operations which may affect the discharge of significant quantities of pollutants to surface waters, ground waters, municipal storm drain systems, or when deemed necessary by the Engineer. The SWPPP shall also be amended if it is in violation of any condition of the Permit, or has not effectively achieved the objective of reducing pollutants in storm water discharges. Amendments shall show additional control measures or revised operations, including those in areas not shown in the initially approved SWPPP, which are required on the project to control water pollution effectively. Amendments to the SWPPP shall be submitted for review and approval by the Engineer in the same manner specified for the initially approved SWPPP. Approved amendments shall be dated and logged in the SWPPP. Upon approval of the amendment, the Contractor shall implement the additional control measures or revised operations.

The Contractor shall keep a copy of the SWPPP and approved amendments at the project site. The SWPPP shall be made available upon request of a representative of the Regional Water Quality Control Board, State Water Resources Control Board, U.S. Environmental Protection Agency or local storm water management agency. Requests by the public shall be directed to the Engineer.

By June 15 of each year, the Contractor shall submit an annual certification to the Engineer stating compliance with the requirements governing the Permit. If the project is in non-compliance at any time, the Contractor shall make a written report to the Engineer within 5 days of identification of non-compliance.

**SCHEDULE OF VALUES.—**The Contractor shall submit with the SWPPP, for approval by the Engineer, a schedule of values detailing the cost breakdown of the contract lump sum item for water pollution control. The schedule of values shall reflect the items of work, quantities and costs for control measures shown in the SWPPP, except for critical temporary controls and permanent control measures which are shown on the project plans and for which there is a contract item of work. Adjustments in the items of work and quantities listed in the schedule of values shall be made when required to address approved amendments to the SWPPP.

The sum of the amounts for the units of work listed in the schedule of values shall be equal to the contract lump sum price for water pollution control.

If approved in writing by the Engineer, the schedule of values will be used to determine progress payments for water pollution control during the progress of the work, and as the basis for calculating any adjustment in compensation for the contract item for water pollution control due to changes in the work ordered by the Engineer.

**SWPPP IMPLEMENTATION.—**Upon approval of the SWPPP, the Contractor shall be responsible throughout the duration of the project for installing, constructing, inspecting and maintaining the control measures included in the SWPPP and any amendments thereto and for removing and disposing of temporary control measures. Unless otherwise directed by the Engineer or specified in these special provisions, the Contractor's responsibility for SWPPP implementation shall continue throughout any temporary suspension of work ordered in accordance with Section 8-1.05,

"Temporary Suspension of Work," of the Standard Specifications. Requirements for installation, construction, inspection, maintenance, removal and disposal of control measures are specified in the Handbook and these special provisions.

Soil stabilization practices and sediment control measures, including minimum requirements, shall be provided throughout the winter season, defined as between November 1 and March 30.

Implementation of soil stabilization practices and sediment control measures for soil-disturbed areas of the project site shall be completed, except as provided for below, no later than 20 days prior to the beginning of the winter season or upon start of applicable construction activities for projects which begin either during or within 20 days of the winter season.

Throughout the winter season, the active, soil-disturbed area of the project site shall be no more than one acre. The Engineer may approve, on a case-by-case basis, expansions of the active, soil-disturbed area limit. The Contractor shall demonstrate the ability and preparedness to fully deploy soil stabilization practices and sediment control measures to protect soil-disturbed areas of the project site before the onset of precipitation. The Contractor shall maintain a quantity of soil stabilization and sediment control materials on site equal to 125 percent of that sufficient to protect unprotected, soil-disturbed areas on the project site and shall maintain a detailed plan for the mobilization of sufficient labor and equipment to fully deploy control measures required to protect unprotected, soil-disturbed areas on the project site prior to the onset of precipitation. The Contractor shall include a current inventory of control measure materials and the detailed mobilization plan as part of the SWPPP.

Throughout the winter season, soil-disturbed areas of the project site shall be considered to be nonactive whenever soil disturbing activities are expected to be discontinued for a period of 20 or more days and the areas are fully protected. Areas that will become nonactive either during the winter season or within 20 days thereof shall be fully protected with soil stabilization practices and sediment control measures within 10 days of the discontinuance of soil disturbing activities or prior to the onset of precipitation, whichever is first to occur.

Throughout the winter season, active soil-disturbed areas of the project site shall be fully protected at the end of each day with soil stabilization practices and sediment control measures unless fair weather is predicted through the following work day. The weather forecast shall be monitored by the Contractor on a daily basis. The National Weather Service forecast shall be used, or an alternative weather forecast proposed by the Contractor may be used if approved by the Engineer. If precipitation is predicted prior to the end of the following work day, construction scheduling shall be modified, as required, and the Contractor shall deploy functioning control measures prior to the onset of the precipitation.

The Contractor shall implement, year-round and throughout the duration of the project, control measures included in the SWPPP for sediment tracking, wind erosion, non-storm water management and waste management and disposal.

The Engineer may order the suspension of construction operations which create water pollution if the Contractor fails to conform to the requirements of this section "Water Pollution Control" as determined by the Engineer.

**MAINTENANCE**.—To ensure the proper implementation and functioning of control measures, the Contractor shall regularly inspect and maintain the construction site for the control measures identified in the SWPPP. The Contractor shall identify corrective actions and time frames to address any damaged measures or reinitiate any measures that have been discontinued.

The construction site inspection checklist provided in the Handbook shall be used to ensure that the necessary measures are being properly implemented, and to ensure that the control measures are functioning adequately. The Contractor shall submit one copy of each site inspection record to the Engineer.

During the winter season, inspections of the construction site shall be conducted by the Contractor to identify deficient measures, as follows:

1. Prior to a forecast storm;
2. After any precipitation which causes runoff capable of carrying sediment from the construction site;
3. At 24 hour intervals during extended precipitation events; and
4. Routinely, at a minimum of once every 2 weeks.

If the Contractor or the Engineer identifies a deficiency in the deployment or functioning of an identified control measure, the deficiency shall be corrected by the Contractor immediately, or by a later date and time if requested by the Contractor and approved by the Engineer in writing, but not later than the onset of subsequent precipitation events. The correction of deficiencies shall be at no additional cost to the State.

**WATER POLLUTION CONTROL TRAINING.—**The Contractor's management and supervisory personnel along with workers involved with the placement and maintenance of storm water pollution prevention “Best Management Practices” shall be trained on general storm water pollution control requirements consistent with the "Caltrans Storm Water Quality Handbook, Construction Contractor's Guide and Specifications". The training is to be provided by the Contractor. The amount of training provided should be commensurate with the job performed by the employee.

Full compensation for water pollution control training shall be considered as included in the contract lump sum price paid for water pollution control, and no additional compensation will be allowed therefor.

**PAYMENT**.—The contract lump sum price paid for prepare storm water pollution prevention plan shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in developing, preparing, obtaining approval of, revising and amending the SWPPP as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Attention is directed to Sections 9-1.06, "Partial Payments," and 9-1.07, "Payment After Acceptance," of the Standard Specifications. Payments for prepare storm water pollution prevention plan will be made as follows:

1. After the SWPPP has been approved by the Engineer, 75 percent of the contract item price for prepare storm water pollution prevention plan will be included in the monthly partial payment estimate; and
2. After acceptance of the contract pursuant to Section 7-1.17, "Acceptance of Contract," the remaining 25 percent of the contract item price for prepare storm water pollution prevention plan will be made in accordance with Section 9-1.07.

The contract lump sum price paid for water pollution control shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing, constructing, maintaining, removing and disposing of control measures, except those shown on the project plans and for which there is a contract item of work, and excluding developing, preparing, obtaining approval of, revising and amending the SWPPP, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Changes in control measures required by an approved amendment to the SWPPP, except changes to those control measures shown on the project plans and for which there is a contract item of work, will be considered extra work, in accordance with Section 4-1.03D of the Standard Specifications and the following:

If the control measure is listed in the approved SWPPP schedule of values, an adjustment in compensation for the contract item for water pollution control will be made by applying the increase or decrease in quantities to the approved schedule of values. No adjustment of compensation will be made to the unit price listed for any item in the schedule of values due to any increase or decrease in the quantities, regardless of the reason for the increase or decrease. The provisions in Section 4-1.03B, "Increased or Decreased Quantities," shall not apply to items listed in the schedule of values.

If the control measure is not listed in the approved SWPPP schedule of values, payment will be made by force account.

Those control measures which are shown on the project plans and for which there is a contract item of work will be measured and paid for as that item of work.

The Engineer will retain an amount equal to 25 percent of the estimated value of the contract work performed during estimate periods in which the Contractor fails to conform to the requirements of this section "Water Pollution Control" as determined by the Engineer.

Retentions for failure to conform to the requirements of this section "Water Pollution Control" shall be in addition to the other retentions provided for in the contract. The amounts retained for failure of the Contractor to conform to the requirements of this section will be released for payment on the next monthly estimate for partial payment following the date that an approved SWPPP has been implemented and maintained, and water pollution is adequately controlled, as determined by the Engineer.

**10-1.03 TEMPORARY FENCES**

Temporary fences shall be furnished and constructed, maintained, and later removed as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

Attention is directed to “Order of Work” elsewhere in these special provisions.

Temporary fences shall be CL-8 with green colored engineering fabric.

Except as otherwise specified in this section, temporary fences shall conform to the plan details and the specifications for permanent fences of similar character as provided in Section 80, "Fences," of the Standard Specifications.

Used materials may be used providing such used materials are good, sound, and are suitable for the purpose intended.

Materials may be commercial quality providing the dimensions and sizes of said materials are equal to, or greater than, the dimensions and sizes shown on the plans or specified by the specifications.

Posts shall be either metal or wood at the Contractor's option.

Galvanizing and painting of steel items will not be required.

Treating wood with wood preservatives will not be required.

Concrete footings for metal posts will not be required.

Temporary fences that are damaged from any cause during the progress of the work shall be repaired or replaced by the Contractor at his expense.

When no longer required for the work as determined by the Engineer, temporary fences shall be removed. Removed facilities shall become the property of the Contractor and shall be removed from the site of the work, except as otherwise provided in this section.

Removed temporary fence materials that are not damaged may be reused in the permanent work providing such materials conform to all of the requirements specified for the permanent work and such materials are new when used for the temporary fences.

Holes caused by the removal of temporary fences shall be backfilled in accordance with the provisions in the second paragraph of Section 15-1.02, "Preservation of Property," of the Standard Specifications.

The temporary fences will be measured and paid for in the same manner specified for permanent fences of similar character as provided in Section 80, "Fences," of the Standard Specifications.

Full compensation for maintaining, removing, and disposing of temporary fences shall be considered as included in the contract price paid per linear foot for temporary fence and no additional compensation will be allowed therefor.

**10-1.04 RESURFACE BASKETBALL COURT**

This work shall consist of resurfacing a basketball court with asphalt concrete, a new wearing surface, and restriping as shown on the plans, specified in the special provisions or directed by the Engineer.

The resurfacing shall consist of placing a Plexipave System, for asphalt concrete, manufactured by California Products Corporation. Color coating, as shown on the plans, shall be Sudbury Sand and Florida Green furnished by California Products Corporation.

The Contractor shall place the Plexipave as per the manufacture's recommendation after placement of asphalt concrete. The wearing surfacing shall be installed by an authorized Plexipave Contractor.

Prior to placing the asphalt concrete overlay the Contractor shall prepare the site by removing existing improvements as necessary to permit access to the work area and the accomplishment of the required work, perform "Weed Control" as per "Roadside Clearing" elsewhere in these special provisions, patch all cracks, remove raised crack edges and apply a leveling coarse to produce a regular and planed court surface free of ponding areas 1/10 inch or more in depth. The Contractor shall reset all existing improvements removed to permit access to the work area and the accomplishment of the required work.

**MATERIALS**.—The material for the wearing surface of shall be a Plexipave System, manufactured by California Products Corporation or equal.

**Court Surfacing**

Plexipave System

Manufacturer:

California Products Corporation
169 waverly Street
P.O. Box 569
Cambridge, MA 02139-0569
Tele. (617) 547-5300
1-800-225-1141
FAX (617) 547-6934

Sales Representative:

Tele/FAX (714) 361-1003

The following Contractors are local authorized Plexipave Contractors:

| | |
|---|---|
| Advantage Tennis Courts | Tele. (619) 223-6797 |
| Court Concepts | (619) 538-3398 |
| Ferandel Tennis | (619) 695-0411 |
| Folsom Tennis | (619) 280-7100 |
| Sadler Surfacing | (760) 758-1709 |

For additional authorized Plexipave contractors the Contractor shall contact California Products Corporation.

Color scheme shall be as shown on the plans. Basketball striping shall be white in color. Volleyball striping shall be yellow. The white line shall dominate where the white and yellow lines intersect. All lines shall be 2 inches in width.

The Contractor shall reset the basketball standards so that the rim height is 10'-0" above the finished surface of the courts. Fencing fabric shall be raised to provide a uniform fabric to finished surface clearance of not less than 1/2 inch.

**MEASUREMENT AND PAYMENT**.—Resurface basketball court will be paid for on a lump sum basis.

The contract lump sum price paid for resurface basketball court shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in resurfacing the basketball court complete in place, including striping, and removal and resetting of existing improvements, as shown on the plans, as specified in these special provisions and as directed by the Engineer.

### 10-1.05 PICNIC AREA IMPROVEMENTS

Picnic area improvements shall consist of furnishing and installing a picnic table structure (HEX 20M structure with metal roof on a concrete pad), concrete tables and slabs, drinking fountain, trash containers, hot ash receptacles and barbecue grills, as shown on the plans, as specified in the Standard Specifications and these special provisions and as directed by the Engineer.

Attention is directed to "Signals, Lighting and Electrical Systems" elsewhere in these special provisions for Hex 20M structure lighting.

The HEX 20M structure shall be shop drilled prior to shipping. The structure shall be prepared to receive conduit and lighting fixture mounting channels, and the supporting column shall be outfitted to receive a GFCI outlet on the inside face 4 feet above the baseplate, as shown on the plans. The exact location of the improvements will be as directed by the Engineer.

Two tables shall be installed inside the HEX 20M structure as shown on the plans. Tables installed outside of the structure shall be placed on concrete slabs at locations designated by the Engineer.

**MATERIALS.--**At the Contractor's option, the picnic area improvements shall consists of:

Poligon HEX 20M (prefabricated structure) manufactured by W.H. Porter, Inc., or equal.

**Poligon Metal Structure**

Poligon HEX 20M

| Manufacturer: | Distributor: |
|---|---|
| W. H. Porter, Incorporated<br>4240 N 136th Avenue<br>Holland, Missouri 49424<br>Tele. (800) 354-7721<br>FAX (616) 399-9123 | Miracle Playground Sales,<br>27537 Commerce Center Drive<br>Suite 101<br>Temecula California 92590<br>Tele. (800) 264-7225<br>FAX (909) 676-8706 |

The price quoted by the manufacturer for the Poligon HEX 20M, FOB at Project Site, San Diego, California is $13,907.51 including sales tax. Delivery time is approximately 6 to 8 weeks.

The above price will be firm for all orders placed on or before June 9, 1999.

Six concrete tables manufactured by San Diego Precast Concrete Incorporated, or equal.

**Concrete Tables**

Model Q-LBT-SD-8

| Manufacturer: | Distributor: |
|---|---|
| Quick Crete Products<br>P.O. Box 639<br>Norco, California 91760<br>Tele. (909) 737-6240<br>FAX (909) 7377032 | San Diego Precast Concrete Incorporated<br>9702 Prospect Avenue<br>Santee, CA. 92071<br>Tele (619) 449-6810<br>FAX (619) 449-5805 |

The price quoted by the manufacturer for the concrete tables, FOB at Project Site, San Diego, California is $3,822 not including sales tax.

The above price will be firm for all orders placed on or before June 16, 1999. A revised order form is supplied in the Information handout.

Five barbecue grills as listed below or equal.

**Barbecue Grills**

| Product/Model No. | Manufacturer |
|---|---|
| Pedestal Grill, 200-X/LTCPS-1-01085 | Little Tikes Commercial Play Systems Inc.<br>c/o Pacific Design Concepts<br>P.O. Box 1909<br>Huntington Beach, CA. 92647<br>Tele. (714) 846-4885<br>FAX (714) 846-3485 |
| Pedestal mounted charcoal grill/SB1635 | Kay Park recreation<br>1301 Pine Street<br>Janesville, Iowa 50647<br>Tele. 1-800-553-2467<br>FAX (319) 987-2900 |
| Pilot Rock Park Grill /N-20 B2<br>or<br>Pilot Rock Grill /K-20 B2 | R.J. THOMAS MFG CO., INC<br>P.O. Box 946<br>Cherokee, Iowa 51012<br>Tele. (712) 225-5115<br>or 1-800-762-5002<br>FAX (712) 225-5796 |

Four hot ash containers as listed below or equal.

**Hot Ash Containers**

| Product/Model No. | Manufacturer |
|---|---|
| California Series Hot Ash container/QSCAL25HAC | Quick Crete Products Corp.<br>P.O. Box 639<br>Norco, California 91760<br>Tele. (909) 737-6240<br>FAX (909) 737-7032 |
| Hot Ash Receptacles/Exposed Aggregate 850#<br>or<br>Hot Ash Receptacles/ Smooth Finish Grey, 850# | Herrington Precast Inc.<br>210 Herrington Drive<br>Auburn, California<br>95603-5718<br>Tele. (530) 885-5622<br>FAX (530) 885-8051 |
| Hot Coal Unit/HCR42S | San Diego Precast Concrete<br>9702 Prospect Avenue<br>Santee, California 92071<br>Tele. (619) 449-6810 |

Four trash containers as listed below or equal.

**Trash Containers**

| Product/Model No. | Manufacturer |
|---|---|
| California Series Waste container/QSCAL2540SDWJ | Quick Crete Products Corp.<br>P.O. Box 639<br>Norco, California 91760<br>Tele. (909) 737-6240<br>FAX (909) 737-7032 |
| Concrete, Trash Container/CTCS30FT | Herrington Precast Inc.<br>210 Herrington Drive<br>Auburn, California<br>95603-5718<br>Tele. (530) 885-5622<br>FAX (530) 885-8051 |
| Receptacle W/Side Door Kit/TR27DSQH/K | San Diego Precast Concrete<br>9702 Prospect Avenue<br>Santee, California 92071<br>Tele. (619) 449-6810 |

One drinking fountain manufactured by Haws Drinking Faucet Co. or equal.

**Drinking Fountain**

Haws Model #FCS50

| Manufacturer: | Distributor: |
|---|---|
| Haws Drinking Faucet Co.<br>P.O. Box 1999<br>Berkeley, California 94710<br>Tele. (510) 525-5801<br>FAX (510)528-2812 | The Wakefield Company<br>14252 Culver Drive<br>Suite A-810<br>Irvine California 92714<br>Tele. (714) 552-1130<br>FAX (714) 552-1626 |

The price quoted by the manufacturer for the above drinking fountain, FOB at Project Site is $2,540.00 including sales tax.

The above price will be firm for all orders placed on or before June 12, 1999.

The structure shall be a hexagon shelter with a metal roof installed on a concrete pad.

The exterior color of the roof of the structure shall be bright red, the ceiling panels shall be light stone color with the frame, including posts, to remain primed. Colors shall be as furnished by the vendor. The structure shall exhibit good workmanship free from structural flaws and objectionable surface defects.

All components of the structure shall be hot dip galvanized or powder coat.

The concrete for picnic area improvements shall be Class B concrete conforming to Section 73, “Concrete Curbs and Sidewalks,” of the Standard Specifications. The color of the concrete for the pad shall be integral coral red, to match the C-22 coral red, Standard Colors A-312.08 of L. M. Scofield Co., for inquires call Telephone (800) 800-9900. Concrete slabs shall not be colored.

Picnic area improvements damaged due to the Contractor's operations shall be repaired immediately by the Contractor at his expense. If the Engineer determines that the structure is damaged beyond repair due to the Contractor's operations it shall be removed and replaced by the Contractor at his expense. If the structure is damaged by the public and the Engineer orders the structure to be repaired or replaced the repair or replacement will be paid for as extra work as provided in Section 4-l.03D of the Standard Specifications.

Barbecue grill units shall be installed at the location designated by the Engineer.

Picnic area improvements damaged beyond repair by the public, when ordered by the Engineer, shall be removed and replaced immediately by the Contractor.

**INSTALLATION**.—Picnic area improvements shall be installed as per the manufacturer's recommendations. Installation of the improvements shall be completed by the first week of the first month of March following approval of the contract.

**MEASUREMENT AND PAYMENT**.—Repairing or replacing picnic area improvements damaged by the public will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

The contract lump sum price paid for picnic area improvements shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in installing picnic area improvements complete in place, as shown on the plans, as specified in these special provisions and as directed by the Engineer.

## 10-1.06 ART PROTECTION PLAN

Existing art work and murals in Chicano Park shall be protected from damage due to the Contractor's operations in accordance with these special provisions.

Attention is directed to the Information Handout for the list of original Artists and phone numbers where they can be reached.

The graphic images painted on Bents 38 through 40 and Bent H41 is exempt from the Art Protection Plan but shall be wrapped for protection. At the Contractor's option, the columns shall be wrapped with a plastic, cloth or other material of his choice.

Full compensation for protecting the graphic images shall be considered as included in the contract lump sum price for art protection plan and no separate payment will be made therefor.

Bents H42 through H44, H47,PR46, S43 and S44 in Chicano Park have no murals and do not require protective measures.

Attention is directed to the Plaque/pedestal at the base of Bent F42, the Plaque/pedestal is to be protected at all times. The metal flashing, painted as a portion of the mural, at the top of Bent F41 is also to be protected.

A portion of mural painted on the sidewalk at the base of Bent R46 can be removed, remainder of mural is to be protected. The mural on Bent G46, "Death of a Farmworker", shall be protected except for the area shown on the plans to be repainted by others.

The "LS4" sidewalk will impact the mural on the existing retaining wall. The mural projecting from the finished grade of the sidewalk and above shall be protected.

Attention is directed to "Falsework," "Preservation of Property" and "Order of Work" elsewhere in these special provisions.

The Contractor shall prepare a Art Protection Plan (APP) detailing procedures, materials and sequence of operations necessary to protect existing art work and murals from damage. The Contractor shall enlist the aid of an Art Conservator in the preparation of the APP. Within 30 days, after the approval of the contract, the Contractor shall submit the APP to the Engineer for approval. The Contractor shall allow 15 days for the Engineer to review the APP. If revisions are required, as determined by the Engineer, the Contractor shall submit a revised APP within 15 days after receipt of the Engineer's comments and shall allow an additional 15 days for the Engineer to review the revisions. No work shall be performed in the park areas until the Engineer has approved the APP. The Contractor and Art Conservator shall sign the APP.

The Art Conservator shall be a member in good standing of the American Institute for Conservation of Historic and Artistic Works with experience in conserving exterior architectural surfaces. A partial list of suitable Art Conservator candidates is presented below:

| NAME | PHONE |
|---|---|
| 1. Beverly Perkins | (909) 698-1520 |
| 2. John Griswold | (805) 565-3639 |
| 3. Donna Williams | (213) 935-7266 |
| 4. John Burke | (510) 238-3806 |
| 5. Duane Chartier | (310) 391-3537 |
| 6. Aneta Zebala | (310) 396-2332 |
| 7. Molly Lambert | (415) 386-1077 |
| 8. Leslie Rainer | (310) 396 8717 |

The Contractor may select from any of those candidates listed above or another Art Conservators who meets the above qualifications.

The APP, at a minimum shall include:

1. Evidence that the retained Art Conservator adheres to the American Institute for Conservation (AIC) Code of Ethics and Guidelines for Practice.
2. Identification of key personnel that will be responsible for installing, maintaining and removing safeguard measures.
3. An inventory and pre-construction evaluation on the condition of the murals and art pieces.
4. Description and detail drawings of safeguard measures that are to be implemented. Safeguard measures shall include provisions for insuring that mechanized earthwork operations not be performed within 2 feet of the mural or art piece and that elements of safeguard measures not come into direct contact with any murals or art pieces.
5. A description of general safe work practices.
6. A schedule for implementing safeguards based on stage construction plans.
7. An outlined sequence of operations for implementing and removing safeguards, including staging and traffic control.
8. A method and procedure for restoring murals and art pieces, damaged as a result of the Contractor's operation, to their original condition.

Prior to demonstrating the protective measures, a meeting between the Art Conservator, Contractor and the Engineer will be held to discuss the recommendations from the approved APP.

The Contractor's Art Conservator or designated representative shall, at a minimum, be on-site at the time the safeguard measures are installed and at the time the safeguard measures are being removed. In addition, the Contractor shall have their Art Conservator initiate an evaluation of the mural or art piece within 2 working days after the measures has been removed. The evaluation shall consist of determining the post construction condition of the mural or art piece along with the nature and extent of any damage or injury. A written report outlining the results of this evaluation shall be submitted to the Engineer within 10 working days after the protective measure has been removed.

Protective measures shall prevent damage to the art pieces from concrete form leakage, coring operations or from any other materials from contacting the existing murals.

Prior to working on columns with murals, the Contractor shall demonstrate the effectiveness of the proposed protective measures on 3 columns without murals, Bents H52, H53 and H54.

In the event of damage to the existing murals, the Contractor shall notify the Engineer immediately in writing stating the location of the mural or art work and the nature of the damage. No additional work shall be performed at the location in question until the Contractor has received written notification from the Engineer to proceed with the work.

If the Engineer determines the damage to the mural was caused directly or indirectly by the Contractor's operations the damaged mural shall be restored to its condition prior to the start of construction at the Contractor's expense. The Contractor shall make all efforts to enlist the aide of the original artist of the damaged mural to do the repairs. Where the original artist is not available the Art Conservator shall make the repairs. If the mural cannot be restored to its original condition prior to construction, when compared to the video or photographic documentation, the Contractor shall pay to the State the following unit cost to repaint the entire mural: $ 5000 per square foot.

**PAYMENT**.—The contract lump sum price paid for develop art protection plan shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in developing, preparing, obtaining approval of, revising and amending the APP as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Attention is directed to Sections 9-1.06, "Partial Payments," and 9-1.07, "Payment After Acceptance," of the Standard Specifications. Payments for prepare APP will be made as follows:

1. After the APP has been approved by the Engineer, 75 percent of the contract item price for prepare art protection plan will be included in the monthly partial payment estimate; and
2. After acceptance of the contract pursuant to Section 7-1.17, "Acceptance of Contract," the remaining 25 percent of the contract item price for prepare art protection plan will be made in accordance with Section 9-1.07.

The contract lump sum price paid for art protection plan shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing, constructing, maintaining, removing and disposing of control measures, and excluding developing, preparing, obtaining approval of, revising and amending the APP, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The adjustment provision in Section 4-1.03, "Changes," shall not apply to the item of Art Protection Plan. Any adjustment in compensation due to an increase or decrease in the quantity of work to be performed, which is ordered by the Engineer, shall be made on the basis of the cost of the increased or decreased work. Such cost shall be paid for as

force account as provided in Section 9-1.03, "Force Account Payment," for increased work and estimated on the same basis as in the case of decreased work.

The Engineer will retain an amount equal to 25 percent of the estimated value of the contract work performed during estimate periods in which the Contractor fails to conform to the requirements of this section "Art Protection Plan" as determined by the Engineer.

Retentions for failure to conform to the requirements of this section "Art Protection Plan" shall be in addition to the other retentions provided for in the contract. The amounts retained for failure of the Contractor to conform to the requirements of this section will be released for payment on the next monthly estimate for partial payment following the date that an approved APP has been implemented.

**10-1.07 TEMPORARY PORTABLE RESTROOM**

The Contractor shall provide 4 unisex temporary portable restrooms for the public during the construction of Stage 1. At least one restroom shall be American Disability Act (ADA) compliant, Title 24 and California Accessibility Regulations.

The exact location of the restrooms will be determined by the Engineer.

Attention is directed to “Order of Work” elsewhere in these special provisions.

The restroom area shall be set up as a minimum with the following facilities:

Toilet
Toilet-paper dispenser
Exterior wash basins (one of which is to be ADA Compliant)
Liquid soap dispenser
Paper Towels

The restrooms shall be equipped with a gravity feed potable-water system of adequate pressure to operate the wash basin. The water storage tank shall be checked and replenished with potable water at a minimum of once a week.

After completion of Stage 2 the permanent facilities shall be reopened to the public and the temporary portable restrooms removed from the job site.

The contract lump sum price paid for temporary portable restroom shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in temporary portable restroom complete in place, including maintenance, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**10-1.08 PRESERVATION OF PROPERTY**

Attention is directed to the provisions in Section 7-1.11, "Preservation of Property," of the Standard Specifications and these special provisions.

Existing trees, shrubs and other plants, that are not to be removed as shown on the plans or specified elsewhere in these special provisions, and are injured or damaged by reason of the Contractor's operations, shall be replaced by the Contractor. The minimum size of tree replacement shall be 36 inch box and the minimum size of shrub replacement shall be 15-gallon. Replacement ground cover plants shall be from flats and shall be planted 12 inches on center. Replacement planting shall conform to the requirements in Section 20-4.07, "Replacement," of the Standard Specifications.

Damaged or injured plants shall be removed and disposed of outside the highway right of way in accordance with the provisions in Section 7-l.13 of the Standard Specifications. At the option of the Contractor, removed trees and shrubs may be reduced to chips. The chipped material shall be spread within the highway right of way at locations designated by the Engineer.

Replacement planting of injured or damaged trees, shrubs and other plants shall be completed prior to the start of the plant establishment period and shall conform to the provisions in Section 20-4.05, "Planting," of the Standard Specifications.

**10-1.09 DAMAGE REPAIR**

Attention is directed to the provisions in Sections 7-1.16, "Contractor's Responsibility for the Work and Materials," and 7-1.165, "Damage by Storm, Flood, Tidal Wave or Earthquake," of the Standard Specifications and these special provisions.

When, as a result of drought conditions (as defined herein) during the plant establishment period, plants have died or, in the opinion of the Engineer, have deteriorated to a point beyond which they will not mature as typical examples of their species, the Engineer may direct replacement of the affected plants. The total cost of ordered plant replacements, after water has been restricted or stopped, will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications. Any restriction or shutoff of available water shall not relieve the Contractor from performing other

contract work. A drought condition occurs when the Department, or its supplier, restricts or stops delivery of water to the Contractor to the degree that plants have died or deteriorated as described above.

When the provisions in Section 7-1.165, "Damage by Storm, Flood, Tidal Wave or Earthquake," of the Standard Specifications, are applicable, the provisions above for payment of costs for repair of damage due to drought shall not apply.

**10-1.10 RELIEF FROM MAINTENANCE AND RESPONSIBILITY**

The Contractor may be relieved of the duty of maintenance and protection for those items not directly connected with plant establishment work, except highway planting and irrigation systems in accordance with the provisions in Section 7-1.15, "Relief From Maintenance and Responsibility," of the Standard Specifications.

**10-1.11 COOPERATION**

Attention is directed to Sections 7-1.14, "Cooperation," and 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications and these special provisions.

During the life of this contract, work by State, City of San Diego Park and Recreation Department and other agency forces and other Contractors may be in progress within or adjacent to the project limits of this contract.

Other State highway contracts within or adjacent to the project limits of this contract include the following:

| | |
|---|---|
| 11-021914 | Rte. 75, Abut 1 to End of Toll Bridge |
| 11-021924 | Rte. 75, Tower & Foundation, Abut 1 to Pier 26 |
| 11-021934 | Rte. 75, Tower & Foundation, Pier 25-32 |
| 11-171704 | Rte. 75, P.M. R20.1/R22.3 |

**10-1.12 PROGRESS SCHEDULE (CRITICAL PATH)**

Progress schedules will be required for this contract. Progress schedules shall utilize the Critical Path Method (CPM).

**Definitions -** The following definitions apply to this section "Progress Schedule (Critical Path)":

1) Activity: Any task, or portion of a project which takes time to complete.
2) Baseline Schedule: The initial CPM schedule representing the Contractor's original work plan, as accepted by the Engineer.
3) Critical Path Method: A mathematical calculation to determine the longest path of work and relative float represented by a graphic representation of the sequence of activities that shows the interrelationships and interdependencies of the elements composing a project.
4) Current Contract Completion Date: The extended date for completion of the contract shown on the weekly statement of working days furnished by the Engineer in accordance with Section 8-1.06, "Time of Completion," of the Standard Specifications.
5) Early Completion Time: The difference in time between the current contract completion date and the Contractor's scheduled early completion date as shown on the accepted baseline schedule, or schedule updates and revisions.
6) Float: The amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any activity or group of activities in the network.
7) Fragnet: A section or fragment of the network diagram comprised of a group of activities.
8) Free Float: The amount of time an activity can be delayed before affecting a subsequent activity.
9) Hammock Activity: An activity added to the network to span an existing group of activities for summarizing purposes.
10) Milestone: A marker in a network which is typically used to mark a point in time or denote the beginning or end of a sequence of activities. A milestone has zero duration, but will otherwise function in the network as if it were an activity.
11) Revision: A change in the future portion of the schedule that modifies logic, adds or deletes activities, or alters activities, sequences, or durations.
12) Tabular Listing: A report showing schedule activities, their relationships, durations, scheduled and actual dates, and float.
13) Total Float: The amount of time that an activity may be delayed without affecting the total project duration of the critical path.
14) Update: The modification of the CPM progress schedule through a regular review to incorporate actual progress to date by activity, approved time adjustments, and projected completion dates.

**Preconstruction Scheduling Conference -** The Engineer will schedule and conduct a Preconstruction Scheduling Conference with the Contractor's Project Manager and Construction Scheduler within seven days after the bidder has received the contract for execution. At this meeting, the requirements of this section of the special provisions will be reviewed with the Contractor. The Contractor shall be prepared to discuss its schedule methodology, proposed sequence of operations, and any deviations it proposes to make from the Stage Construction Plans. At this meeting, the Contractor shall submit its proposed work breakdown structure, the associated alpha-numeric coding structure to implement the work breakdown structure and the activity identification system for labeling all work activities. The Engineer shall review and comment on the work breakdown structure, the coding structure and activity identification system within seven days after submission by the Contractor. The Contractor shall make all modifications to the proposed work breakdown structure, the coding structure and activity identification system that are requested by the Engineer, and shall employ that coding, structure and system in its baseline schedule submission.

**Interim Baseline Schedule -** Within 10 days after approval of the contract, the Contractor shall submit to the Engineer an interim baseline project schedule which will serve as the progress schedule for the first 120 days of the project, or until the baseline schedule is accepted, whichever is sooner. The interim baseline schedule shall utilize the critical path method. The interim baseline schedule shall depict how the Contractor plans to perform the work for the first 120 days of the contract. Additionally, the interim baseline schedule shall show all submittals required early in the project, and shall provide for all permits, and other non-work activities necessary to begin the work. The interim baseline schedule submittal shall include a 3 l/2 inch floppy diskette which contains the data files used to generate the schedule.

The Engineer shall be allowed 15 calendar days to review and accept or reject the interim baseline schedule submitted. Rejected schedules shall be resubmitted to the Engineer within 5 calendar days of receipt by the Contractor of the Engineer's comments, at which time a new 15-calendar day review period by the Engineer will begin.

**Baseline Schedule -** Within 30 days after approval of the contract, the Contractor shall submit to the Engineer a baseline project schedule. The baseline schedule shall include the activities shown on the interim baseline schedule in the same order and logical relationship as shown in the interim baseline schedule. The baseline project schedule shall have a data date of the day prior to the first working day of the contract and shall not include any completed work to-date. The baseline progress schedule shall meet interim target dates, milestones, stage construction requirements, internal time constraints, show logical sequence of activities, and must not extend beyond the number of days originally provided for in the contract.

The baseline CPM schedule submitted by the Contractor shall have a sufficient number of activities to assure adequate planning of the project and to permit monitoring and evaluation of progress and the analysis of time impacts. The baseline schedule shall depict how the Contractor plans to complete the whole work involved, and shall show all activities that define the critical path.

The baseline progress schedule shall be supplemented with resource allocations for every activity, to a level of detail that facilitates report generation based on labor craft and equipment class for the Contractor and subcontractors. The Contractor shall use average composite crews to display the labor loading of on-site construction activities. The Contractor shall optimize and level labor to reflect a reasonable plan for accomplishing the work of the contract and to assure that resources are not duplicated in concurrent activities. The Contractor shall require each subcontractor to submit in writing a statement certifying that the subcontractor has concurred with the Contractor's CPM, including major updates, and that the subcontractor's related schedule has been incorporated accurately, including the duration of activities and labor and equipment loading. Along with the baseline progress schedule, the Contractor shall also submit to the Engineer time-scaled resource histograms of the labor crafts and equipment classes to be utilized on the contract. The baseline schedule submittal shall include a 3 l/2 inch floppy diskette which contains the data files used to generate the schedule.

The Engineer shall be allowed 15 calendar days to review and accept or reject the baseline project schedule submitted. Rejected schedules shall be resubmitted to the Engineer within 5 calendar days, at which time a new 15-calendar day review period by the Engineer will begin.

**Project Schedule Reports -** Schedules submitted to the Engineer including baseline and interim baseline schedules shall include time scaled network diagrams. Network diagrams shall be based on early start and early finish dates of activities shown. The network diagrams submitted to the Engineer shall also be accompanied by the computer-generated mathematical analysis tabular reports for each activity included in the project schedule. Three different report sorts shall be provided: Early Start, Free Float, Total Float, and Activity Number, which shall show all predecessors and successors for each activity. The mathematical analysis tabular reports (8 1/2" x 11" size) shall be submitted to the Engineer and shall include, at a minimum, the following for each activity:

1) Data date
2) Predecessor and successor activity numbers and descriptions;

3) Activity number and description;
4) Activity codes;
5) Schedule, and actual and remaining duration for each activity;
6) Earliest start date (by calendar date);
7) Earliest finish date (by calendar date);
8) Actual start date (by calendar date);
9) Actual finish date (by calendar date);
10) Latest start date (by calendar date);
11) Latest finish date (by calendar date);
12) Identify actual non-working days
13) Identify activity calendar type
14) Total Float and Free Float, in work days;
15) Percentage of activity complete and remaining duration for incomplete activities; and
16) Imposed constraints.

Networks shall be drafted time scaled to show a continuous flow of information from left to right. The primary paths of criticality shall be clearly and graphically identified on the networks. The network diagram shall be prepared on E-size sheets (36" x 48"), shall have a title block in the lower right-hand corner, and a timeline on each page. Exceptions to the size of the network sheets and the use of computer graphics to generate the networks shall be subject to the approval of the Engineer.

Schedule network diagrams and computer tabulations shall be submitted to the Engineer for acceptance in the following quantities:

a) 2 sets of the Network Diagrams;
b) 2 copies of the computer tabulation reports (8 1/2" x 11" size); and
c) 3 computer diskettes.

Should the baseline schedule or schedule update, submitted for acceptance, show variances from the requirements of the contract, the Contractor shall make specific mention of the variations in the letter of transmittal, in order that, if accepted, proper adjustments to the project schedule can be made. The Contractor will not be relieved of the responsibility for executing the work in strict accordance with the requirements of the contract documents. In the event of a conflict between the requirements of the contract documents and the information provided or shown on an accepted schedule, the requirements of the contract documents shall take precedence.

Each schedule submitted to the Engineer shall comply with all limits imposed by the contract, with all specified intermediate milestone and completion dates, and with all constraints, restraints or sequences included in the contract. The degree of detail shall include factors including, but not limited to:

1) Physical breakdown of the project;
2) Contract milestones and completion dates, substantial completion dates, constraints, restraints, sequences of work shown in the contract, the planned substantial completion date, and the final completion date;
3) Type of work to be performed, the sequences, and the major subcontractors involved;
4) All purchase, submittals, submittal reviews, manufacture, tests, deliver, and installation activities for all major materials and equipment.
5) Preparation, submittal and approval of shop and working drawings and material samples, showing time, as specified elsewhere, for the Engineer's review. The same time frame shall be allowed for at least one resubmittal on all major submittals so identified in the contract documents;
6) Identification of interfaces and dependencies with preceding, concurrent and follow-on contractors, railroads, and utilities as shown on the plans or specified in the specifications;
7) Identification of each and every utility relocation and interface as a separate activity, including activity description and responsibility coding that identifies the type of utility and the name of the utility company involved.
8) Actual tests, submission of test reports, and approval of test results;
9) All start-up, testing, training, and assistance required under the Contract;
10) Punchlist and final clean-up;
11) Identification of any manpower, material, or equipment restrictions, as well as any activity requiring unusual shift work, such as double shifts, 6-day weeks, specified overtime, or work at times other than regular days or hours; and
12) Identification of each and every ramp closing and opening event as a separate one-day activity, including designation by activity coding and description that it is a north-bound, south-bound, east-bound, west-bound, and entry or exit ramp activity.

Each construction activity shall have a duration of not more than 20 working days, and not less than one working day unless permitted otherwise by the Engineer. All activities in the schedule, with the exception of the first and last activities, shall have a minimum of one predecessor and a minimum of one successor. The baseline schedule shall not attribute negative float to any activity. Float shall not be considered as time for the exclusive use of or benefit of either the State or the Contractor but shall be considered as a jointly owned, expiring resource available to the project and shall not be used to the financial detriment of either party. Any accepted schedule, revision or update having an early completion date shall show the time between the early completion date and the current Contract Completion Date as "project float".

The Contractor shall be responsible for assuring that all work sequences are logical and the network shows a coordinated plan for complete performance of the work. Failure of the Contractor to include any element of work required for the performance of the contract in the network shall not relieve the Contractor from completing all work within the time limit specified for completion of the contract. If the Contractor fails to define any element of work, activity or logic, and the omission or error is discovered by either the Contractor or the Engineer, it shall be corrected by the Contractor at the next monthly update or revision of the schedule.

**Monthly Update Schedules -** The Contractor shall submit a Monthly Update Schedule to the Engineer once in each month. The proposed update schedule prepared by the Contractor shall include all information available as of the 20th calendar day of the month, or other date as established by the Engineer. A detailed list of all proposed schedule changes such as logic, duration, lead/lag, additions and deletions shall be submitted with the update.

The monthly update schedule submitted to the Engineer shall be accompanied by a Schedule Narrative Report. The Schedule Narrative Report shall describe the physical progress during the report period, plans for continuing the work during the forthcoming report period, actions planned to correct any negative float predictions, and an explanation of potential delays or problems and their estimated impact on performance, milestone completion dates and the overall project completion date. In addition, alternatives for possible schedule recovery to mitigate any potential delay or cost increases shall be included for consideration by the Engineer. The report shall follow the outline set forth below:

Contractor's Schedule Narrative Report Outline:

1) Contractor's Transmittal Letter
2) Work completed during the period
3) Description of the current critical path
4) Description of problem areas
5) Current and anticipated delays
    a) Cause of the delay
    b) Corrective action and schedule adjustments to correct the delay
    c) Impact of the delay on other activities, milestones, and completion dates
6) Changes in construction sequences
7) Pending items and status thereof
    a) Permits
    b) Change Orders
    c) Time Extensions
    d) Non-Compliance Notices
8) Contract completion date(s) status
    a) Ahead of schedule and number of days
    b) Behind schedule and number of days
9) Include updated Network Diagram and Reports

The Contractor shall provide to the Engineer a 31/2” electronic disk of the schedule, together with printed copies of the network diagrams and tabular reports described under "Project Schedule Reports", and the Schedule Narrative Report.

The monthly update of the schedule shall be for the period from the last update to the current cut-off date, and for the remainder of the project. The current period's activities shall be reported as they actually took place and designated as actually complete, if actually completed, in the schedule updates.

Portions of the network diagram on which all activities are complete need not be reprinted and submitted in subsequent updates. However, the electronic disk file of the submitted schedule and the related reports shall constitute a clear record of progress of the work from award of contract to final completion.

The Contractor will be permitted to show early or late completion on schedule updates and revisions. The Engineer may use the updates and revisions, and other information available, in evaluating the effect of changes, delays, or time

savings on the critical path and the accepted schedule current at the time to determine if there is an applicable adjustment of time, if any, to any target date or completion date due to the changes, delays, or time savings.

On a date determined by the Engineer, the Contractor shall meet with the Engineer to review the monthly schedule update. At the monthly progress meeting, the Contractor and the Engineer will review the updated schedule and will discuss the content of the Narrative Report. The Engineer shall be allowed 15 days after the meeting to review and accept or reject the update schedule submitted. Rejected schedules shall be resubmitted to the Engineer within 15 calendar days, at which time a new 15-calendar day review period by the Engineer will begin.

**Schedule Revisions -** If the Contractor desires to make a change to the accepted schedule, the Contractor shall request permission from the Engineer in writing, stating the reasons for the change, and proposed revisions to activities, logic and duration. The Contractor shall submit for acceptance the affected portions of the project schedule and an analysis to show the effect on the entire project. The Engineer will provide a response within 10 days. No revision to the accepted baseline schedule or the schedule updates shall be made without the prior written approval of the Engineer.

The Engineer will request the Contractor to submit a proposed revised schedule within 15 days when:

a) there is a significant change in the Contractor's operations that will affect the critical path;
b) the current updated schedule indicates that the contract progress is 30 calendar days or more behind the planned schedule, as determined by the Engineer; or
c) the Engineer determines that an approved or anticipated change will impact the critical path, milestone or completion dates, contract progress, or work by other contractors.

The Engineer shall be allowed 15 days to review and accept or reject a schedule revision. Rejected schedule revisions shall be revised and resubmitted to the Engineer within 15 calendar days, at which time a new 15-calendar day review period by the Engineer will begin. Only upon approval of a change by the Engineer shall it be reflected in the next schedule update submitted by the Contractor.

**Schedule Time Extension Requests -** When the Contractor requests a time extension due to contract change orders or delays, the Contractor shall submit to the Engineer a written Time Impact Analysis illustrating the influence of each change or delay on the current contract completion date or milestone completion date, utilizing the current accepted schedule. Each Time Impact Analysis shall include a fragnet demonstrating how the Contractor proposes to incorporate the Change Order or delay into the current schedule. The fragnet shall include the sequence of new and existing activity revisions that are proposed to be added to the accepted baseline project schedule or current schedule in effect at the time the change or delay is encountered, to demonstrate the influence of the delay and the proposed method for incorporating the delay and its impact into the schedule.

Each Time Impact Analysis shall demonstrate the estimated time impact based on the events of delay, the anticipated or actual date of the contract change order work performance, the status of construction at that point in time, and the event time computation of all activities affected by the change or delay. The event times used in the analysis shall be those included in the latest update of the current schedule in effect at the time the change or delay was encountered.

Time extensions will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total or remaining float along the critical path of activities at the time of actual delay, or at the time the contract change order work is performed. Float time is not for the exclusive use or benefit of the Engineer or the Contractor, but is an expiring resource available to all parties as needed to meet contract milestones and the contract completion date. Time extensions will not be granted nor will delay damages be paid unless:

a) the delay is beyond the control and without the fault or negligence of the Contractor and its subcontractors or suppliers, at any tier; and,
b) the delay extends the actual performance of the work beyond the applicable current contract completion date and the most recent date predicted for completion of the project on the accepted schedule update current as of the time of the delay or as of the time of issuance of the contract change order.

Time Impact Analyses shall be submitted in triplicate within 15 days after the delay occurs or after issuance of the contract change order.

Approval or rejection of each Time Impact Analysis by the Engineer will be made within 15 days after receipt of the Time Impact Analysis, unless the review is delayed by subsequent meetings and negotiations. A copy of the Time Impact Analysis approved by the Engineer shall be returned to the Contractor and the accepted schedule revisions illustrating the influence of the contract change orders or delays shall be incorporated into the project schedule during the first update after approval.

**Final Schedule Update -** Within 15 days after the acceptance of the contract by the Director, the Contractor shall submit a final update of the schedule with actual start and actual finish dates for all activities. This schedule submission

shall be accompanied by a certification, signed by an officer of the company and the Contractor's Project Manager stating "To the best of my knowledge, the enclosed final update of the project schedule reflects the actual start and completion dates of the activities contained herein."

**Equipment and Software -** The Contractor shall provide for the State's exclusive possession and use a complete computer system specifically capable of creating, storing, updating and producing CPM schedules. Before delivery and setup of the computer system, the Contractor shall submit to the Engineer for approval a detailed list of all computer hardware and software the Contractor proposes to furnish. The minimum computer system to be furnished shall include the following:

1) Complete computer system, including keyboard, mouse, 17 inch color SVGA monitor (1,024x768 pixels), Intel Pentium 266 MHZ micro processor chip, or equivalent, or better.

2) Computer operating system software, compatible with the selected processing unit, for Windows 95 or later, or equivalent.

3) Minimum sixty-four (64) megabytes of random access memory (RAM).

4) A two-gigabyte minimum hard disk drive, a 1.44 megabyte 3 1/2 inch floppy disk drive, 16x speed minimum CD-ROM drive, and ethernet card, 33.6 modem.

5) A color-ink-jet plotter with a minimum 8 megs RAM, capable of 600 dots per inch color, 600 dots per inch monochrome, or equivalent plotter capable of printing fully legible, time scaled charts, and network diagrams, in four colors, with a minimum size of 36 inches by 48 inches (E size) and is compatible with the selected system; and

6) CPM software shall be Primavera Project Planner, version 2.0 for Windows 95, or later.

The computer hardware and software furnished shall be compatible with that used by the Contractor for the production of the CPM progress schedule required by the Contract, and shall include original instruction manuals and other documentation normally provided with the software.

The Contractor shall furnish, install, set up, maintain and repair the computer hardware and software ready for use at a location determined by the Engineer. The hardware and software shall be installed and ready for use by the first submission of the baseline schedule. The Contractor shall provide 24 hours of formal training for the Engineer and three other agents of the Department designated by the Engineer, in the use of the hardware and software to include schedule analysis, reporting, resource and cost allocations. The training shall be performed by an authorized vendor of Primavera Project Planner software and shall be completed not more than 30 days after approval of the contract.

All computer hardware and software famished shall remain the property of the Contractor and shall be removed by the Contractor upon acceptance of the contract when no claims involving contract progress are pending. When claims involving contract progress are pending, computer hardware or software shall not be removed until the final estimate has been submitted to the Contractor.

**Payment -** Progress schedule (critical path) will be paid for at a lump sum price. The contract lump sum price paid for progress schedule (critical path) shall include full compensation for furnishing all labor, materials (including computer hardware and software), tools, equipment, and incidentals; and for doing all the work involved in preparing, furnishing, updating and revising CPM progress schedules; maintaining and repairing the computer hardware; and training the Engineer in the use of the computer hardware and software; as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Payments for progress schedule (critical path) will be made as follows:

Interim baseline schedule accepted, then 10 percent payment for progress schedule (critical path) will be made.
Baseline schedule accepted, then 10 percent payment for progress schedule (critical path) will be made.
Monthly update schedules accepted, then 75 percent payment for progress schedule (critical path) will be made equally for each update.
Final schedule update accepted, then 5 percent payment for progress schedule (critical path) will be made.

The Department will retain an amount equal to 25 percent of the estimated value of the work performed during the first estimate period in which the Contractor fails to submit an interim baseline, baseline, revised or updated CPM schedule conforming to the requirements of this section, as determined by the Engineer. Thereafter, on subsequent successive estimate periods the percentage the Department will retain will be increased at the rate of 25 percent per

estimate period in which acceptable CPM progress schedules have not been submitted to the Engineer. Retentions for failure to submit acceptable CPM progress schedules shall be additional to all other retentions provided for in the contract. The retention for failure to submit acceptable CPM progress schedules will be released for payment on the next monthly estimate for partial payment following the date that acceptable CPM progress schedules are submitted to the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of progress schedule (critical path). Adjustments in compensation for the project schedule will not be made for any increased or decreased work ordered by the Engineer in furnishing project schedules.

**10-1.13 ELECTRONIC MOBILE DAILY DIARY SYSTEM DATA DELIVERY**

Attention is directed to Sections 5-1.10, "Equipment and Plants," and 7-1.OIA(3), "Payroll Records," of the Standard Specifications, and these special provisions.

The Contractor shall submit to the Engineer a list of each piece of equipment and its identifying number, type, make, model and rate code in accordance with the Department of Transportation publication entitled "Labor Surcharge and Equipment Rental Rate" which is in effect on the date upon the work is performed, and the names, labor rates and work classifications for all field personnel employed by the Contractor and all subcontractors in connection with the public work, together with such additional information as is identified below. This information shall be updated and submitted to the Engineer weekly through the life of the project.

This personnel information will only be used with a State mobile daily diary computer system and it will not relieve the Contractor and subcontractors from all the payroll records requirements as required by Section 7-1.01A(3), "Payroll Records," of the Standard Specifications.

The Contractor shall provide the personnel and equipment information not later than 11 days after the contract award for its own personnel and equipment, and not later than 5 days before start of work by any subcontractor for the labor and equipment data of that subcontractor.

The minimum data to be furnished shall comply with the following specifications:

Data Content Requirements.--

1. The Contractor shall provide the following basic information for itself and for each subcontractor that will be used on the contract:

| | |
|---|---|
| Company name. | Alphanumeric; up to 30 characters. |
| Company type (prime or sub) | Alphanumeric; up to 10 characters. |
| Address (line 1). | Alphanumeric; up to 30 characters. |
| Address (line 2). | Alphanumeric; up to 30 characters. |
| Address (city). | Alphanumeric; up to 30 characters. |
| Address (2-letter state code). | Alphanumeric; up to 2 characters. |
| Address (zip code) | Alphanumeric; up to 14 characters. |
| Contact name. | Alphanumeric; up to 30 characters. |
| Telephone number (with area code). | Alphanumeric; up to 20 characters. |
| Company code: short company name. | Alphanumeric; up to 10 characters. |
| Type of work (Department supplied codes) | Alphanumeric; up to 30 characters. |
| DBE status (Department-supplied codes) | Alphanumeric; up to 20 characters. |
| Ethnicity for DBE status (Department-supplied codes). | Alphanumeric; up to 20 characters. |
| List of laborers to be used on this contract (detail specified below). | |
| List of equipment to be used on this contract (detail specified below). | |

For example, one such set of information for a company might be:

XYZ COMPANY, INC.
PRIME
1240 9TH STREET
SUITE 600
OAKLAND
CA
94612
JOHN SMITH

(510) 834-9999
XYZ
PAVING
MBE
BLACK

2.The Contractor shall provide the following information for each laborer who will be used on the contract:

| | |
|---|---|
| Company code (as defined above). | Alphanumeric; up to 10 characters. |

| | |
|---|---|
| Employ ID | Alphanumeric; up to 10 characters. |
| Last name. | Alphanumeric; up to 20 characters. |
| First name. | Alphanumeric; up to 15 characters. |
| Middle initial. | Alphanumeric; up to 1 characters. |
| Labor classification (Department -provided codes). | Alphanumeric; up to 10 characters. |
| Hourly rate. | Alphanumeric; up to (6,2) |
| Trainee status (Y/N). | Alphanumeric; up to 1 characters |
| Ethnicity (Department-provided codes). | Alphanumeric; up to 10 characters. |
| Gender. | Alphanumeric; up to 1 characters. |

For example, one such set of information might be:

XYZ
1249
GONZALEZ
HECTOR
V
OPR
22.75
N
HISPANIC
M

3.The Contractor shall provide the following information for each piece of equipment that will be used on the contract:

| | |
|---|---|
| Company code (as defined above). | Alphanumeric; up to 10 characters. |
| Company's equipment ID number. | Alphanumeric; up to 10 characters. |
| Company's equipment description. | Alphanumeric; up to 60 characters. |
| Equipment type (from Caltrans ratebook). | Alphanumeric; up to 60 characters. |
| Equipment make (from Caltrans ratebook). | Alphanumeric; up to 60 characters. |
| Equipment model (from Caltrans ratebook). | Alphanumeric; up to 60 characters. |
| Equipment rate code (from Caltrans ratebook). | Alphanumeric; up to 10 characters |
| Hourly rate. | Alphanumeric; up to (6,2) |
| Rental flag | Alphanumeric; up to 1 characters. |

For example, one such set of information might be:

XYZ
B043
CAT TRACTOR D-6C
TRACC
CAT
D-6C
3645
28.08
N

**Data Delivery Requirements.--**

1. All data described in "Data Requirements" of this section shall be delivered to the Department electronically, on 3 1/2" floppy disks compatible with the Microsoft Windows operating system. The Contractor shall provide a weekly disk and hard copy of the required correct updated personnel and equipment information for the Contractor and all the subcontractors and verified correct by the Engineer.
2. Data of each type of described in the previous section (contractor, labor, and equipment information) will be delivered separately, each type in one or more files on floppy disk. Any given file may contain information from one contractor or from multiple contractors, but only one type of data (contractor, labor, or equipment information).
3 . The file format for all files delivered to the Department shall be standard comma-delimited, plain text files. This type of file (often called “CSV”) is the most standard type for interchange of formatted data; it can be

created and read by all desktop spreadsheet and database applications. Characteristics of this type of file are:

- All data is in the form of plain ASCII characters.
- Each row of data (company, person, equipment) is delimited by a carriage return character.
- Within rows, each column (field) of data is delimited by a comma character

4. The files shall have the following columns (i.e., each row shall have the following fields):

- Contractor info: 11 columns (fields) as specified in “Data Requirements #l”, above.
- Labor info: 9 columns (fields) as specified in "Data Requirements #2", above.
- Equipment info: 8 columns (fields) as specified in "Data Requirements #3 ", above.

For each type of file, columns (fields) must be in the order specified under "Data Requirements", above. All columns (fields) described under "Data Requirements" must be present for all rows, even if some column (field) values are empty. The first row of each file may contain column headers (in plain text) rather than data, if desired.

5. Column (field) contents must conform to the data type and length requirements described in the "Data Requirement" section, above. In addition, column (field) data must conform to the following restrictions:

- All data shall be uppercase.Company type shall be either “Prime” or “Sub”..
- Labor classification codes must conform to a list of standard codes that will be supplied by Department.
- Contractor type of work codes and DBE status must conform to a list of standard codes that will be supplied by Department.
- Ethnicity codes must conform to standard codes that will be supplied by Department.
- Data in the "trainee status" column must be either "Y" or "N".
- Data in the "gender" column must be either "M" or "F".
- Data in the “rental equipment” column must be either “Y” or “N”.
- Equipment owner's description may not be omitted. (The description, together with the equipment number, is how the equipment will be identified in the field.)
- Equipment type, make, model, and ratebook code shall conform to the Department of Transportation Publication entitled "Labor Surcharge and Equipment Rental Rate", which is in effect on the date upon the work is performed. If the equipment in question does not have an entry in the book then alternate, descriptive entries may be made in these fields.

6. The name of each file must indicate its contents, e.g., "XYZlab.txt" for laborers from XYZ Company, Inc. Each floppy disk supplied to the Department must be accompanied by a printed list of the files it contains with a brief description of the contents of each file.

**PAYMENT.--** Payment for providing electronic mobile daily diary computer system data delivery will be made on a lump sum basis. The lump sum bid price for electronic mobile daily diary computer system data delivery will be made according to the following schedule:

The Contractor will receive not more than 4per cent per month of the total bid price for electronic mobile daily diary computer system data delivery .

After the completion of the work, 100 per cent payment will be made for electronic mobile daily diary computer system data delivery less the permanent deduction, if any, for failure to deliver complete weekly electronic mobile daily diary computer system data in each month.

The contract lump sum price paid for electronic mobile daily diary computer system data delivery shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in

electronic mobile daily diary computer system data delivery as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

In the event the Contractor fails to deliver complete weekly electronic mobile daily diary computer system data in each month , the Department will retain 4percent of the total bid price for electronic mobile daily diary computer system data delivery until the data is delivered.

**10-1.14 OBSTRUCTIONS**

Attention is directed to Sections 8-1.10, "Utility and Non-Highway Facilities," and 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety and welfare of workmen and of the public. Facilities requiring special precautions include, but are not limited to: conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases; natural gas in pipelines greater than 6 inches in diameter or pipelines operating at pressures greater than 60 psi gauge; underground electric supply system conductors or cables, with potential to ground of more than 300 volts, either directly buried or in duct or conduit which do not have concentric grounded conductors or other effectively grounded metal shields or sheaths.

The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to performing any excavation including excavation for construction area signs. Regional notification centers include but are not limited to the following:

| Notification Center | Telephone Number |
|---|---|
| Underground Service Alert-Northern California (USA) | 1-800-642-2444<br>1-800-227-2600 |
| Underground Service Alert-Southern California (USA) | 1-800-422-4133<br>1-800-227-2600 |

The following utility facilities are shown on the plans and require special handling. This does not relieve the Contractor of his responsibility for other utility facilities on the project.

| Utility | Location | Note |
|---|---|---|
| Underground electric | Main Street | |
| 16 inch 150 psi gas | Under the sidewalk on the Bent 34 side of Main Street | (A) & (B) |
| 1 inch gas | Under the sidewalk on the Bent 34 side of Main Street | |
| 3/4 inch gas | On the Bent 38 side of Newton Avenue | |
| Underground electric | Along alley line between Newton Avenue and National Avenue | |
| 3 inch gas | National Avenue | |
| 2 inch gas | Logan Avenue | |
| 2 inch gas | Kearney Avenue | |
| 10 inch oil products pipeline | Crosby Street | (A) & (B) |

(A) -- A representative of the utility owner shall be present whenever excavation is performed within 4 feet of the utility. The utility company must be notified by the Contractor 2 days before excavation.

(B) -- No excavation shall be performed within 4 feet of the utility until the owner, or his representative has located the facility by pot holing, probing, or other means that will locate and identify the facility both horizontally and vertically. The utility company will be allowed 20 working days to perform this work.

Excavation in areas requiring regional notification center investigation shall not be commenced until all utilities in these areas have been located and identified.

Power equipment may be used for excavating construction area sign postholes if it is determined that there are no utility facilities within 4 feet of the proposed post holes.

It is anticipated that the following utility facilities will be relocated or abandoned prior to the dates shown.

| Utility | Location | Date |
|---|---|---|
| Pacific Bell underground fiber optic telephone (Relocated) | Bent S41 | 8/31/99 |
| SDG&E underground communications line (Abandoned) | Bents H40 (Rt. Column), S41, S42 (Lt Column), R46 and PR46. | 9/1/98 |

Installation of the following utility facilities will require coordination with the Contractor's operations. The Contractor shall make necessary arrangements with the utility company, through the Engineer, and shall submit a schedule of work verified by a representative of the utility company. The schedule of work shall provide not less than the following number of notification days (N Days), and working days (W Days) as defined in Section 8-1.06, "Time of Completion," of the Standard Specifications for the utility company to complete their work.

The Contractor shall not perform any structural work on Bent H33 until the existing utilities have been relocated.

The Utility Working Days shall not begin until both the notification and site preparation requirements have been met.

| Utility Owner and type of facility | Location | Utility N/W Days | Site Preparation by Contractor | Utility Company Work |
|---|---|---|---|---|
| Pacific Bell fiber optic telephone line | Bent H33 & R33 | 30/10 (Working days for Pacific Bell shall not be concurrent with working days for TWC and Cox at this location.) | Completion of all retrofit work on Bent R33, the installation of channel conduit supports on Bent R33-right and relocation of the water service line to the San Diego utility building. | Pacific Bell will remove the existing fiber optics line from Bent H33-left and relocate the line to Bent R33-right. Work will run from the Pacific Bell manhole in Main street up Bent R33-right and along the catwalk to Pier 21. Pacific Bell work will extend from Pier 21 to Abutment 1 on a related project. |
| Time Warner Communications (TWC) fiber optic line | Bent H33 & R33 | 30/10 (Working days for TWC shall not be concurrent with working days for Pacific Bell and Cox at this location.) | Completion of all retrofit work on Bent R33, the installation of channel conduit supports on Bent R33-right and relocation of the water service line to the San Diego utility building. | TWC will remove the existing fiber optics line from Bent H33 and relocate the line to Bent R33-right. Work will run from Main street up Bent R33-right and along the catwalk to Pier 21. |
| Cox Communications fiber optic line (line is marked TCG) | Bent H33 & R33 | 30/10 (Working days for Cox shall not be concurrent with working days for TWC and Pacific Bell at this location.) | Completion of all retrofit work on Bent R33, the installation of channel conduit supports on Bent R33-right and relocation of the water service line to the San Diego utility building. | Cox will remove the existing fiber optics line from Bent 33H and relocate the line to Bent R33-right. Work will run from Main street up Bent R33-right and along the catwalk to Pier 21. |
| SDG&E guy cable and anchor | Bent H38 | 30/3 | No site preparation. The time the guy is in the relocated position shall be limited to the | SDG&E will move the cable guy to a position in the sidewalk along Newton Avenue |

| | | | | |
|---|---|---|---|---|
| | | | time that work is being performed on bent H38. | |
| SDG&E guy cable and anchor | Bent H38 | 10/1 | Completion of retrofit work that the guy interferes with | SDG&E will move the cable guy back to its original position |
| SDG&E guy cable and anchor | Bent S41 | 30/3 | Placement of the temporary railing in Dewey Street. The time the guy is in the relocated position shall be limited to the time that work is being performed on bent S41. | SDG&E will move the cable guy to a position at the curb return of the National/Dewey intersection. |
| SDG&E guy cable and anchor | Bent S41 | 10/1 | Completion of retrofit work that the guy interferes with. Before removal of the temporary railing in Dewey Street. | SDG&E will move the cable guy back to its original position |
| SDG&E communications line | From Dewey Street at the alley between Newton and National to the power pole near Bent PR46. | 0/5 | No site preparation. The Contractor shall allow SDG&E access to the construction area. | Construct new ducts and install communications line. SDG&E shall coordinate their construction schedule with the Contractor. |

**Refer to the Utility N /W Days column**:

**N** = The minimum number of working days from the date the Engineer receives written notification that a site will be ready for utility work to the date the site is actually ready for utility work

**W** = The number of working days needed by the utility company to complete the listed Utility Co. Work.

**Site Preparation by Contractor** The work described in "Site Preparation by Contractor" must be completed by the Contractor before the associated utility relocation work described in "Utility Company Work" can be performed by the utility company.

**Utility Company Work.** The work described in "Utility Company Work" will be performed by the utility company after the associated site preparation work has been competed by the Contractor. The work listed in "Utility Company Work" to be performed by the Utility Company is the minimum anticipated work. The actual work may vary from that listed.

**10-1.15 MOBILIZATION**

Mobilization shall conform to the provisions in Section 11, "Mobilization," of the Standard Specifications.

**10-1.16 CONSTRUCTION AREA SIGNS**

Construction area signs shall be furnished, installed, maintained, and removed when no longer required in accordance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Attention is directed to "Obstructions" elsewhere in these special provisions.

Sign substrates for stationary mounted construction area signs may be fabricated from fiberglass reinforced plastic as specified under "Pre qualified and Tested Signing and Delineation Materials" elsewhere in these special provisions.

Type IV reflective sheeting for sign panels for portable construction area signs shall conform to the requirements specified under "Pre qualified and Tested Signing and Delineation Materials" elsewhere in these special provisions.

**10-1.17 MAINTAINING TRAFFIC**

Attention is directed to Sections 7-1.08, "Public Convenience," 7-1.09, "Public Safety," and 12, "Construction Area Traffic Control Devices," of the Standard Specifications and to the Section entitled "Public Safety" elsewhere in these special provisions, and these special provisions. Nothing in these special provisions shall be construed as relieving the Contractor from the responsibilities specified in Section 7-1.09.

The minimum size specified for Type II flashing arrow signs in the table following the second paragraph of Section 12-3.03, "Flashing Arrow Signs," of the Standard Specifications is amended to read "36 inches by 72 inches".

In the Standard Plans, Note 10 on Standard Plan T10, Note 9 on Standard Plan T10A, Note 5 on Standard Plan T11, Note 6 on Standard Plan T12, Note 5 on Standard Plan T13, and Note 4 on Standard Plan T14 are revised to read:

All traffic cones used for night lane closures shall have reflective cone sleeves as specified in the specifications.

The second and third paragraphs of Section 12-3.10, "Traffic Cones," of the Standard Specifications are amended to read:

During the hours of darkness traffic cones shall be affixed with reflective cone sleeves. The reflective sheeting of sleeves on the traffic cones shall be visible at 1,000 feet at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Reflective cone sleeves shall conform to the following:

1. Removable flexible reflective cone sleeves shall be fabricated from the reflective sheeting specified in the special provisions, have a minimum height of 13 inches and shall be placed a maximum of 3 inches from the top of the cone. The sleeves shall not be in place during daylight hours.
2. Permanently affixed semitransparent reflective cone sleeves shall be fabricated from the semitransparent reflective sheeting specified in the special provisions, have a minimum height of 13 inches, and shall be placed a maximum of 3 inches from the top of the cone. Traffic cones with semitransparent reflective cone sleeves may be used during daylight hours.
3. Permanently affixed double band reflective cone sleeves shall have 2 white reflective bands. The top band shall be 6 inches in height, placed a maximum of 4 inches from the top of the cone. The lower band shall be 4 inches in height, placed 2 inches below the bottom of the top band. Traffic cones with double band reflective cone sleeves may be used during daylight hours.

The type of reflective cone sleeve used shall be at the option of the Contractor. Only one type of reflective cone sleeve shall be used on the project.

The C16 and C17 designations of the signs shown on the detail "Entrance Ramp Without Turning Pockets" of Standard Plan T14 are amended to designate the signs as R16 and R17, respectively.

Lane closures shall conform to the provisions in the section of these special provisions entitled "Traffic Control System for Lane Closure."

Personal vehicles of the Contractor's employees shall not be parked on the traveled way or shoulders, including any section closed to public traffic.

The Contractor shall notify local authorities of his intent to begin work at least 5 days before work is begun. The Contractor shall cooperate with local authorities relative to handling traffic through the area and shall make his own arrangements relative to keeping the working area clear of parked vehicles.

Whenever vehicles or equipment are parked on the shoulder within 6 feet of a traffic lane, the shoulder area shall be closed as shown on the plans.

Lanes shall be closed only during the hours shown on the charts included in this section "Maintaining Traffic." Except work required under said Sections 7-1.08 and 7-1.09, work that interferes with public traffic shall be performed only during the hours shown for lane closures.

The full width of the traveled way shall be open for use by public traffic when construction operations are not actively in progress.

Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, November 11th, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday.

Minor deviations from the requirements of this section concerning hours of work which do not significantly change the cost of the work may be permitted upon the written request of the Contractor if in the opinion of the Engineer public traffic will be better served and the work expedited. Such deviations shall not be adopted until the Engineer has indicated his written approval. All other modifications will be made by contract change order.

Ramps may be closed only if signed for closing 3 days in advance. The Contractor shall notify the Engineer not less than 5 calendar days prior to signing the ramp. If the ramp is not closed on the posted day, the closure shall be changed to allow 3 days advance notice before closure.

Consecutive on-ramps or off-ramps in the same direction of travel shall not be closed simultaneously unless otherwise provided in these special provisions or permitted by the Engineer.

Should the Contractor fail to provide all lanes and ramps ready for use by public traffic at the times specified in the "Lane Closure Charts" included in this section "Maintaining Traffic," on northbound or southbound Route 75, liquidated damages will be assessed by the Department as follows:

For each 10 minute period, or fraction thereof, that all lanes and ramps are not available for use by public traffic as delineated on the charts, the amount of liquidated damage assessed will be $4,150. The maximum amount of such assessment will be $ 74,700 per day. These deductions by the Department will be cumulative with each location or operation involved. The Department will deduct those amounts from any moneys due, or that may become due the Contractor under the contract.

It is therefore agreed that the Contractor will pay to the State the amounts specified herein as liquidated damages. The liquidated damages herein provided for are in addition to those specified in Standard Specification section 1-1.26, Liquidated Damages.

**LANE CLOSURE CHART NO 1**

DIRECTION: Southbound Rte-75; LOCATION: SB On-ramp from Logan Ave/Crosby St;
Northbound Rte-75 NB Off-ramp to National Ave

Lane Requirements and Hours of Work

| | AM | | | | | | | | | | | | PM | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FROM HOUR TO HOUR | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Mondays through Thursdays | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | ■ | ■ | ■ | ■ |
| Fridays | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | |
| Saturdays | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sundays | | | | | | | | | | | | | | | | | | | | | ■ | ■ | ■ | ■ | ■ |
| Day before Designated legal holiday | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | |
| Designated Legal Holidays | | | | | | | | | | | | | | | | | | | | | | | | | |

Legend:

■ One lane open in direction of travel

■ Ramp may be closed

□ No lane closure permitted

REMARKS: P.M.: R22.029;
R22.198

**LANE CLOSURE CHART NO 2**

| | | |
|---|---|---|
| DIRECTION: Southbound | Rte-75; | LOCATION: SB On-ramp from SB RTE 5; |
| Northbound | Rte-75; | NB Off-ramp to NB RTE 5; |
| Southbound | Rte-75; | SB On-ramp from NB RTE 5; |
| Northbound | Rte-75 | NB Off-ramp to SB RTE 5 |

Lane Requirements and Hours of Work

| FROM HOUR TO HOUR | AM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | PM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mondays through Thursdays | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | ■ | ■ | ■ | ■ | |
| Fridays | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | |
| Saturdays | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sundays | | | | | | | | | | | | | | | | | | | | | ■ | ■ | ■ | ■ | |
| Day before Designated legal holiday | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | |
| Designated Legal Holidays | | | | | | | | | | | | | | | | | | | | | | | | | |

Legend:

■ One lane open in direction of travel

□ No lane closure permitted

■ Ramp may be closed

REMARKS:
P.M.: R22.139
Detour SB RTE 5 to SB RTE 75 traffic via southerly on RTE 5 to SB RTE 5 Off-ramp to 27th St/National Ave thence easterly on National Ave to NB RTE 5 On-ramp from EB National Ave thence northerly on RTE 5 to NB RTE 5 Off-ramp to SB RTE 75;

P.M.: R22.095
Detour NB RTE 75 to NB RTE 5 traffic via northerly on RTE 75 to NB RTE 75 Off-ramp to SB RTE 5 thence southerly on RTE 5 to SB RTE 5 Off-ramp to 27th St/National Ave thence easterly on National Ave to NB RTE 5 On-ramp from EB National Ave;

P.M.: R22.140
Detour NB RTE 5 to SB RTE 75 traffic via northerly on RTE 5 to NB RTE 5 Off-ramp to 19th St/"J" St thence westerly on "J" St to SB RTE 5 On-ramp from 17th St/"J" St thence southerly on RTE 5 to SB RTE 5 Off-ramp to SB RTE 75;

P.M.: R22.197
Detour NB RTE 75 to SB RTE 5 traffic via northerly on RTE 75 to NB RTE 75 Off-ramp to NB RTE 5 thence northerly on RTE 5 to NB RTE 5 Off-ramp to 19th St/"J" St thence westerly on "J" St to SB RTE 5 On-ramp from 17th St/"J" St.

**LANE CLOSURE CHART NO 3**

DIRECTION: Northbound/Southbound "Logan Ave"; LOCATION: At RTE 75;
Northbound/Southbound "Kearney Ave" at Jct RTE 5/RTE 75

Lane Requirements and Hours of Work

| FROM HOUR TO HOUR | AM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | PM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mondays through Thursdays | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | ■ | ■ | ■ | ■ | |
| Fridays | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | |
| Saturdays | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sundays | | | | | | | | | | | | | | | | | | | | | ■ | ■ | ■ | ■ | |
| Day before Designated legal holiday | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | |
| Designated Legal Holidays | | | | | | | | | | | | | | | | | | | | | | | | | |

Legend:

■ One lane open in direction of travel

□ No lane closure permitted

REMARKS: P.M.: R22.26 (SD-75);
R14.08 (SD-5)

The left turn pocket on Logan Ave may be used as thru lane during hours above. Left turn moves may be restricted during closure hours.

**LANE CLOSURE CHART NO 4**

DIRECTION: Northbound/Southbound Rte-5 LOCATION: 0.19 Mi. S. of National Ave OC to
0.19 Mi. N. of Imperial Ave UC

Lane Requirements and Hours of Work

| FROM HOUR TO HOUR | AM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | PM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mondays through Thursdays | ■ | ■ | ■ | ■ | ■ | ▒ | | | | | | | | | | | | | | ▒ | ■ | ■ | ■ | ■ | |
| Fridays | ■ | ■ | ■ | ■ | ■ | ▒ | | | | | | | | | | | | | | | | | | | |
| Saturdays | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sundays | | | | | | | | | | | | | | | | | | | | ▒ | ■ | ■ | ■ | ■ | |
| Day before Designated legal holiday | ■ | ■ | ■ | ■ | ■ | ▒ | | | | | | | | | | | | | | | | | | | |
| Designated Legal Holidays | | | | | | | | | | | | | | | | | | | | | | | | | |

Legend:

■ Three lanes open in direction of travel

▒ Shoulder may be closed

□ No lane closure permitted

REMARKS: P.M.: R13.29 / R14.70

**LANE CLOSURE CHART NO 5**

DIRECTION: Northbound Rte-5 LOCATION: NB Off-ramp to Kearny Ave

Lane Requirements and Hours of Work

| FROM HOUR TO HOUR | AM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | PM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mondays through Thursdays | ■ | ■ | ■ | ■ | ■ | ■ | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | ■ | ■ | ■ | ■ | ■ |
| Fridays | ■ | ■ | ■ | ■ | ■ | ■ | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | |
| Saturdays | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | |
| Sundays | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | ■ | ■ | ■ | ■ | ■ |
| Day before Designated legal holiday | ■ | ■ | ■ | ■ | ■ | ■ | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | |
| Designated Legal Holidays | | | | | | | | | | | | | | | | | | | | | | | | | |

Legend:

■ Ramp may be closed

■ Shoulder may be closed

□ No lane closure permitted

REMARKS: P.M.: R14.028

**LANE CLOSURE CHART NO 6**

DIRECTION: Northbound/Southbound "Dewey St" LOCATION: At RTE 75

Lane Requirements and Hours of Work

| FROM HOUR TO HOUR | AM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | PM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mondays through Thursdays | ■ | ■ | ■ | ■ | ■ | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | ■ | ■ | ■ | |
| Fridays | ■ | ■ | ■ | ■ | ■ | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | |
| Saturdays | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | |
| Sundays | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | ■ | ■ | ■ | |
| Day before Designated legal holiday | ■ | ■ | ■ | ■ | ■ | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | |
| Designated Legal Holidays | | | | | | | | | | | | | | | | | | | | | | | | | |

Legend:

■ One way traffic control permitted:
1. Close one traffic lane and stop public traffic for periods not to exceed five minutes.
2. Provide at least one traffic lane.
3. Maximum length of one-way control shall be 300'.

□ No lane closure permitted

REMARKS: P.M.: R22.198 (Rte-75)

**LANE CLOSURE CHART NO. 7**

DIRECTION: Northbound Rte-75 LOCATION: Coronado Bridge

Lane Requirements and Hours of Work

| FROM HOUR TO HOUR | AM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | PM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mondays through Thursdays | ■ | ■ | ■ | ■ | ■ | | | | | ■ | ■ | ■ | ■ | ■ | | | | | | | ■ | ■ | ■ | ■ | ■ |
| Fridays | ■ | ■ | ■ | ■ | ■ | | | | | ■ | ■ | ■ | ■ | ■ | | | | | | | ■ | ■ | ■ | ■ | ■ |
| Saturdays | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | ■ | ■ | ■ | ■ | ■ |
| Sundays | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | ■ | ■ | ■ | ■ | ■ |
| Day before Designated legal holiday | ■ | ■ | ■ | ■ | ■ | | | | | ■ | ■ | ■ | ■ | ■ | | | | | | | ■ | ■ | ■ | ■ | ■ |
| Designated Legal Holidays | | | | | | | | | | | | | | | | | | | | | | | | | |

LEGEND:

■ One lane open in direction of travel

■ Two adjacent lanes open in direction of travel

□ No closure permitted

REMARKS:

PM: R12.73

**LANE CLOSURE CHART NO. 8**

DIRECTION: Southbound Rte-75 LOCATION: Coronado Bridge

Lane Requirements and Hours of Work

| FROM HOUR TO HOUR | AM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | PM 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mondays through Thursdays | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | ■ | ■ | ■ | ■ | ■ |
| Fridays | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | ■ | ■ | ■ | ■ | ■ |
| Saturdays | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Sundays | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Day before Designated legal holiday | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | ■ | ■ | ■ | ■ | ■ |
| Designated Legal Holidays | | | | | | | | | | | | | | | | | | | | | | | | | |

LEGEND:

■ One lane open in direction of travel

■ Two adjacent lanes open in direction of travel

□ No closure permitted

REMARKS:

PM: R12.73

**10-1.18 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE**

A traffic control system shall consist of closing traffic lanes and ramps in accordance with the details shown on the plans, the provisions of Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under "Maintaining Traffic" and "Construction Area Signs" elsewhere in these special provisions and these special provisions.

The provisions in this section will not relieve the Contractor from the responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications.

During traffic stripe operations and pavement marker placement operations using bituminous adhesive, traffic shall be controlled, at the option of the Contractor, with either stationary or moving type lane closures. During all other operations traffic shall be controlled with stationary type lane closures. The Contractor's attention is directed to the provisions in Section 84-1.04, "Protection From Damage," and Section 85-1.06, "Placement," of the Standard Specifications.

If any component in the traffic control system is displaced, or ceases to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair the component to its original condition or replace the component and shall restore the component to its original location.

**STATIONARY TYPE LANE CLOSURE.--**When lane and ramp closures are made for work periods only, at the end of each work period, all components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations, approved by the Engineer, within the limits of the highway right of way.

Each vehicle used to place, maintain and remove components of a traffic control system on multilane highways shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining, or removing the components. Vehicles equipped with Type II flashing arrow sign not involved in placing, maintaining, or removing the components when operated within a stationary type lane closure shall only display the caution display mode. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion. The flashing arrow sign shown on the plans shall not be used on the vehicles which are doing the placing, maintaining and removing of components of a traffic control system, and shall be in place before a lane closure requiring its use is completed.

**MOVING TYPE LANE CLOSURE.--**Flashing arrow signs used in moving lane closures shall be truck-mounted. Changeable message signs used in moving lane closure operations shall conform to Section 12-3.12, "Portable Changeable Message Signs," of the Standard Specifications, except the signs shall be truck-mounted and the full operation height of the bottom of the sign may be less than 7 feet above the ground, but should be as high as practicable.

Truck-mounted crash cushions (TMCC) for use in moving lane closures shall be any of the following approved models, or equal:

(1)

Hexfoam TMA Series 3000 and Alpha 1000 TMA Series 1000 and
Alpha 2001 TMA Series 2001

| Manufacturer: | Distributor(Northern): | Distributor(Southern): |
|---|---|---|
| Energy Absorption Systems, Inc.<br>One East Wacker Drive<br>Chicago, IL 60601-2076<br>Telephone (312) 467-6750 | Traffic Control Service, Inc.<br>8585 Thys Court<br>Sacramento, CA 95828<br>Telephone (800) 884-8274<br>FAX (916) 387-9734 | Traffic Control Service, Inc.<br>1881 Betmor Lane<br>Anaheim, CA 92805<br>Telephone (800) 222-8274 |

(2)

Cal T-001 Model 2 or Model 3

Manufacturer:

Hexcel Corporation
11711 Dublin Blvd.
P.O. Box 2312
Dublin, CA 94568
Telephone (510) 828-4200

Distributor:

Hexcel Corporation
11711 Dublin Blvd.
P.O. Box 2312
Dublin, CA 94568
Telephone (510) 828-4200

(3)

Renco Rengard Model Nos. CAM 8-815 and RAM 8-815

Manufacturer:

Renco Inc.
1582 Pflugerville Loop Road
P.O. Box 730
Pflugerville, TX 78660-0730
Telephone (800) 654-8182

Distributor:

Renco Inc.
1582 Pflugerville Loop Road
P.O. Box 730
Pflugerville, TX 78660-0730
Telephone (800) 654-8182

Each TMCC shall be individually identified with the manufacturer's name, address, TMCC model number, and a specific serial number. The names and numbers shall each be a minimum 1/2 inch high, and located on the left (street) side at the lower front corner. The TMCC shall have a message next to the name and model number in 1/2 inch high letters which states, "The bottom of this TMCC shall be _____ inches $\pm$_____ inches above the ground at all points for proper impact performance." Any TMCC which is damaged or appears to be in poor condition shall not be used unless recertified by the manufacturer. The Engineer shall be the sole judge as to whether used TMCCs supplied under this contract need recertification. Each unit shall be certified by the manufacturer to meet the requirements for TMCCs in accordance with the standards established by the Transportation Laboratory Structures Research Section.

Approvals for new TMCC designs proposed as equal to the above approved models shall be in accordance with the procedures (including crash testing) established by the Transportation Laboratory Structures Research Section. For information regarding submittal of new designs for evaluation contact:

Transportation Laboratory
Structures Research Section
P.O. Box 19128
5900 Folsom Boulevard
Sacramento, CA 95819

New TMCCs proposed as equal to approved TMCCs or approved TMCCs determined by the Engineer to need recertification shall not be used until approved or recertified by the Transportation Laboratory Structures Research Section.

**PAYMENT.--**The contract lump sum price paid for traffic control system shall include full compensation for furnishing all labor, materials (including signs), tools, equipment and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing and disposing of the components of the traffic control system as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of traffic control system. Adjustments in compensation for traffic control system will be made only for increased or decreased traffic control system required by changes ordered by the Engineer and will be made on the basis of the cost of the increased or decreased traffic control necessary. Such adjustment will be made on a force account basis as provided in Section 9-1.03, "Force Account Payment," of the Standard Specifications for increased work, and estimated on the same basis in the case of decreased work.

Traffic control system required by work which is classed as extra work, as provided in Section 4-1.03D of the Standard Specifications, will be paid for as a part of the extra work.

## 10-1.19 TEMPORARY PAVEMENT DELINEATION

Temporary pavement delineation shall be furnished, placed, maintained and removed in accordance with the provisions in Section 12-3.01, "General," of the Standard Specifications and these special provisions. Nothing in these special provisions shall be construed as to reduce the minimum standards specified in the Manual of Traffic Controls published by the Department or as relieving the Contractor from the responsibilities specified in Section 7-1.09, "Public Safety," of the Standard Specifications.

Attention is directed to "Traffic Plastic Drums," elsewhere in these special provisions regarding the use of traffic plastic drums in place of portable delineators or cones.

**GENERAL.--**Whenever the work causes obliteration of pavement delineation, temporary or permanent pavement delineation shall be in place prior to opening the traveled way to public traffic. Laneline or centerline pavement delineation shall be provided at all times for traveled ways open to public traffic. On multilane roadways (freeways and expressways) edgeline delineation shall be provided at all times for traveled ways open to public traffic.

All work necessary, including any required lines or marks, to establish the alignment of temporary pavement delineation shall be performed by the Contractor. Surfaces to receive temporary pavement delineation shall be dry and free of dirt and loose material. Temporary pavement delineation shall not be applied over existing pavement delineation or other temporary pavement delineation. Temporary pavement delineation shall be maintained until superseded or replaced with a new pattern of temporary pavement delineation or permanent pavement delineation.

Temporary pavement markers and removable traffic tape which is applied to the final layer of surfacing or existing pavement to remain in place or which conflicts with a subsequent or new traffic pattern for the area shall be removed when no longer required for the direction of public traffic, as determined by the Engineer.

**TEMPORARY LANELINE AND CENTERLINE DELINEATION.--**Whenever lanelines or centerlines are obliterated and temporary pavement delineation to replace the lines is not shown on the plans, the minimum laneline and centerline delineation to be provided for that area shall be temporary reflective pavement markers placed at longitudinal intervals of not more than 24 feet. The temporary reflective pavement markers shall be the same color as the laneline or centerline the pavement markers replace. Temporary reflective pavement markers shall be, at the option of the Contractor, one of the temporary pavement markers listed for short term day/night use (14 days or less) or long term day/night use (6 months or less) in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions.

Temporary reflective pavement markers shall be placed in accordance with the manufacturer's instructions and shall be cemented to the surfacing with the adhesive recommended by the manufacturer, except epoxy adhesive shall not be used to place pavement markers in areas where removal of the pavement markers will be required.

Temporary laneline or centerline delineation consisting entirely of temporary reflective pavement markers placed on longitudinal intervals of not more than 24 feet, shall be used on lanes opened to public traffic for a maximum of 14 days. Prior to the end of the 14 days the permanent pavement delineation shall be placed. If the permanent pavement delineation is not placed within the 14 days, the Contractor shall provide additional temporary pavement delineation and the cost thereof shall be borne by the Contractor. The additional temporary pavement delineation to be provided shall be equivalent to the pattern specified for the permanent pavement delineation for the area, as determined by the Engineer.

Full compensation for furnishing, placing, maintaining and removing the temporary reflective pavement markers, used for temporary laneline and centerline delineation for those areas where temporary laneline and centerline delineation is not shown on the plans and for providing equivalent patterns of permanent traffic lines for those areas when required, shall be considered as included in the contract prices paid for the items of work that obliterated the laneline and centerline pavement delineation and no separate payment will be made therefor.

**TEMPORARY EDGELINE DELINEATION.--**On multilane roadways (freeways and expressways) whenever edgelines are obliterated and temporary pavement delineation to replace those edgelines is not shown on the plans, the edgeline delineation to be provided for those areas adjacent to lanes open to public traffic shall be as follows:

Temporary pavement delineation for right edgelines shall, at the option of the Contractor, consist of either a solid 4-inch wide traffic stripe of the same color as the stripe the temporary edgeline delineation replaces, or traffic cones, portable delineators or channelizers placed at longitudinal intervals not to exceed 100 feet.

Temporary pavement delineation for left edgelines shall, at the option of the Contractor, consist of either solid 4-inch wide traffic stripe of the same color as the stripe the temporary edgeline delineation replaces, or traffic cones, portable delineators or channelizers placed at longitudinal intervals not to exceed 100 feet; or temporary reflective pavement markers placed at longitudinal intervals of not more than 6 feet. Temporary pavement markers used for temporary left edgeline delineation shall be one of the types of temporary pavement markers listed for short term

day/night use (14 days or less) or long term day/night use (6 months or less) in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions.

Four-inch wide traffic stripe placed for temporary edgeline delineation which will require removal shall conform to the requirements of temporary traffic stripe (tape) specified herein. Where removal of the 4-inch wide traffic stripe will not be required painted traffic stripe conforming to the requirements of temporary traffic stripe (paint) specified herein may be used. The quantity of temporary traffic stripe (tape) or temporary traffic stripe (paint) used for this temporary edgeline delineation will not be included in the quantities of tape or paint to be paid for.

The lateral offset for traffic cones, portable delineators or channelizers used for temporary edgeline delineation shall be as determined by the Engineer. If traffic cones or portable delineators are used as temporary pavement delineation for edgelines, the Contractor shall provide personnel to remain at the jobsite to maintain the cones or delineators during all hours of the day that they are in use.

Channelizers used for temporary edgeline delineation shall be the surface mounted type and shall be orange in color. Channelizer bases shall be cemented to the pavement in the same manner provided for cementing pavement markers to pavement in the section of these special provisions entitled "Pavement Markers," except epoxy adhesive shall not be used to place channelizers on the top layer of pavement. Channelizers shall be, at the Contractor's option, one of the surface mount types (36") listed in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions.

Temporary edgeline delineation shall be removed when no longer required for the direction of public traffic, as determined by the Engineer.

The quantity of channelizers used as temporary edgeline delineation will not be included in the quantity of channelizers to be paid for. Full compensation for furnishing, placing, maintaining and removing the temporary edgeline delineation for those areas where temporary edgeline delineation is not shown on the plans shall be considered as included in the contract prices paid for the items of work that obliterated the edgeline pavement delineation and no separate payment will be made therefor.

**TEMPORARY TRAFFIC STRIPE (TAPE).--**Temporary traffic stripe consisting of removable traffic stripe tape shall be applied at the locations shown on the plans. The temporary traffic stripe tape shall be complete in place at the location shown, prior to opening the traveled way to public traffic.

Removable traffic stripe tape shall be the temporary removable type traffic stripe tape listed in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions.

Removable traffic stripe tape shall be applied in accordance with the manufacturer's installation instructions and shall be rolled slowly with a rubber tired vehicle or roller to ensure complete contact with the pavement surface. Traffic stripe tape shall be applied straight on tangent alignment and on a true arc on curved alignment. Traffic stripe tape shall not be applied when the air or pavement temperature is less than 50° F., unless the installation procedures to be used are approved by the Engineer, prior to beginning installation of the tape.

When removable traffic stripe tape is specified for temporary left edgeline delineation, temporary reflective pavement markers placed at longitudinal intervals of not more than 6 feet may be used in place of the temporary traffic stripe tape. Temporary reflective pavement markers shall be one of the types of temporary pavement markers listed for long term day/night use (6 months or less) in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions. When temporary reflective pavement markers are used in place of tape, payment for those temporary pavement markers will be made on the basis of the theoretical quantity of temporary traffic stripe (tape), required for the left edgeline the temporary pavement markers replace.

**TEMPORARY PAVEMENT MARKING (TAPE).--**Temporary pavement marking consisting of removable pavement marking tape shall be applied at the locations shown on the plans. The temporary pavement marking tape shall be complete in place at the location shown, prior to opening the traveled way to public traffic.

Removable pavement marking tape shall be the temporary removable type pavement marking tape listed in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions and shall be applied and removed in accordance with the provisions specified for applying and removing the temporary traffic stripe tape.

**TEMPORARY PAVEMENT MARKERS.--**Temporary pavement markers shall be applied at the locations shown on the plans. The pavement markers shall be applied complete in place at the location shown, prior to opening the traveled way to public traffic.

Temporary pavement markers shown on the plans shall be, at the option of the Contractor, one of the temporary reflective pavement markers for long term day/night use (6 months or less) listed in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions.

Temporary pavement markers shall be placed in accordance with the manufacturer's instructions and shall be cemented to the surfacing with the adhesive recommended by the manufacturer, except epoxy adhesive shall not be used in areas where removal of the pavement markers will be required.

Where the temporary pavement delineation shown on the plans for lanelines or centerlines consists entirely of a pattern of broken traffic stripe and pavement markers, the Contractor may use groups of the temporary reflective pavement markers for long term day/night use (6 months or less) listed in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions, in place of the temporary traffic stripe tape or painted temporary traffic stripe. The groups of pavement markers shall be spaced as shown on the plans for a similar pattern of permanent traffic line, except pavement markers shown to be placed in the gap between the broken traffic stripe shall be placed as part of the group to delineate the pattern of broken temporary traffic stripe. The kind of laneline and centerline delineation selected by the Contractor shall be continuous within a given location. Payment for temporary pavement markers used in place of temporary traffic stripe will be made on the basis of the theoretical quantities of temporary traffic stripe (tape), temporary traffic stripe (paint) and temporary pavement markers required for the pattern the pavement markers replace.

Reflective pavement markers conforming to the requirements of "Pavement Markers" of these special provisions may be used in place of temporary reflective pavement markers for long term day/night use (6 months or less) except at locations to simulate patterns of broken traffic stripe. Placement of the reflective pavement markers used for temporary pavement markers shall conform to said section "Pavement Markers" of these special provisions except; the waiting period requirements before placing the pavement markers on new asphalt concrete surfacing as specified in Section 85-1.06, "Placement," of the Standard Specifications shall not apply and epoxy adhesive shall not be used to place pavement markers in areas where removal of the pavement markers will be required.

**MEASUREMENT AND PAYMENT**.--Temporary traffic stripe (tape) will be measured and paid for by the linear foot, measured along the line of the stripe, with deductions for gaps in broken traffic stripes. Double and 8-inch temporary traffic stripes, shown on the plans as tape, will be measured as 2 temporary traffic stripes (tape). Temporary pavement marking (tape) will be measured and paid for by the square foot for actual area of the pavement marking that receives tape.

Temporary pavement markers, shown on the plans, will be measured and paid for as units in the same manner specified for reflective pavement markers as provided in Section 85-1.08, "Measurement," and Section 85-1.09, "Payment," of the Standard Specifications. Temporary pavement markers, used for temporary laneline and centerline delineation for areas which are not shown on the plans will not be included in the quantities of temporary pavement markers to be paid for. Full compensation for removing temporary pavement markers, when no longer required, shall be considered as included in the contract unit price paid for temporary pavement marker and no separate payment will be made therefor.

The contract price paid per linear foot for temporary traffic stripe (tape) and per square foot for temporary pavement marking (tape) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying, maintaining and removing the temporary traffic stripe tape and temporary pavement marking tape, complete in place, as shown on the plans, as specified in the Standard Specification and these special provisions, and as directed by the Engineer.

### 10-1.20 PORTABLE CHANGEABLE MESSAGE SIGN

Portable changeable message signs shall be furnished, placed, operated, and maintained at locations directed by the Engineer and shall conform to the provisions of Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

The Contractor shall have 4 portable changeable message signs on the project at all times.

### 10-1.21 TEMPORARY RAILING

Temporary railing (Type K) shall be placed at the locations shown on the plans, specified in these special provisions or in the Standard Specifications or ordered by the Engineer, and shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

The fourth paragraph of Section 12-4.01, "Measurement and Payment," of the Standard Specifications is amended to read:

When the Engineer's Estimate includes a contract item for temporary railing (Type K), the temporary railing (Type K) will be measured by the linear foot along the top of the railing, at each location shown on the plans, specified, or ordered by the Engineer. If the Engineer orders a lateral move of the temporary railing (Type K), and the repositioning is not shown on the plans, moving the temporary railing will be paid for as extra work as provided in Section 4-1.03D and the temporary railing will not be measured in the new position. Temporary railing (Type K) placed in excess of the length shown, specified, or ordered will not be paid for. The contract price paid per linear foot for temporary railing (Type K) shall include full compensation for furnishing all labor, materials (including reinforcement and Type P marker panels), tools, equipment and incidentals, and for doing all the work involved in furnishing, placing, maintaining, repairing, replacing, and removing the temporary railing, including excavation and

backfill, drilling holes and bonding threaded rods or dowels when required, removing threaded rods or dowels and filling the drilled holes with mortar, furnishing and installing reflectors, and moving and replacing removable panels as required, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

Reflectors on temporary railing (Type K) shall conform to the provisions in "Prequalified and Tested Signing and Delineation Materials," of these special provisions.

Temporary railing (Type K), conforming to the details shown on 1995 Standard Plan T3 or 1997 Standard Plan T3, may be used. Temporary railing (Type K) fabricated prior to January 1, 1993, and conforming to 1988 Standard Plan B11-30 may be used, provided the fabrication date is printed on the required Certificate of Compliance.

The Contractor's attention is directed to the provisions in "Public Safety" and "Order of Work" elsewhere in these special provisions.

Temporary railing (Type K) placed in accordance with the provisions in "Public Safety" elsewhere in these special provisions will not be measured nor paid for.

**10-1.22 TRAFFIC PLASTIC DRUMS**

Traffic plastic drums shall conform to the requirements for traffic control devices in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Traffic plastic drums shall be constructed of low-density polyethylene material and shall be flexible or collapsible upon impact by a vehicle. The traffic plastic drum shall have a weighted base that will separate from the drum. The base shall be of such shape as to preclude rolling upon impact by a vehicle. The base shall be of sufficient weight to maintain the drum in position and upright. The base or external ballast rings shall not exceed 4 inches in height, and drum rings shall not exceed 38 inches maximum in diameter. The base or external rings placed over and around the drum, resting on the pavement or ground shall contain the ballast for the drums. Ballast for drums shall be sand or water, except sand shall be used in areas susceptible to freezing. The base shall have drain holes to prevent the accumulation of water. Sand bags shall not be used as ballast for drums.

The body of the traffic plastic drum shall be of a fluorescent orange or predominately orange color. Drums shall be a minimum of 36 inches in height above the traveled way, and have at least an 18 inch minimum width, regardless of orientation.

The markings on drums shall be horizontal, circumferential, alternating orange and white reflective bands 4 to 6 inches wide. Each drum shall have a minimum of 2 orange and 2 white bands. The top of the uppermost reflective band shall be no lower than 6 inches from the top of the drum. Any non-reflective spaces between the bands shall not exceed 2 inches in width. The reflective sheeting shall conform to the provisions in "Prequalified and Tested Signing and Delineation Materials," elsewhere in these special provisions.

Only one type of traffic plastic drum shall be used on the project. The type of traffic plastic drum proposed for use on the project shall be submitted to the Engineer for approval, prior to placement on the project.

In curvilinear alignment traffic plastic drums shall be used only on one side of the traveled way. Traffic plastic drums shall be placed on the alignment and location shown on the plans, or directed by the Engineer. Traffic plastic drums shall be placed uniformly, straight on tangent alignment and on a true arc on curved alignment. All layout work necessary to place the traffic plastic drums to the proper alignment shall be performed by the Contractor.

If traffic plastic drums are displaced or are not in an upright position, from any cause, the traffic plastic drums shall immediately be replaced or restored to their original location, in an upright position, by the Contractor.

At the option of the Contractor, where portable delineators, cones or Type I or II barricades are specified in the specifications or shown on the plans, traffic plastic drums may be used in place of those portable delineators, cones or Type I or II barricades.

At the completion of the project, traffic plastic drums shall become the property of the Contractor and removed from the site of the work.

Traffic plastic drums shall be installed as shown on the plans when temporary railing (Type K) is placed as required by "Public Safety" elsewhere in these special provisions.

Traffic plastic drums will be measured as units from actual count of the number of traffic plastic drum designated on the plans or ordered by the Engineer. After initial placement of traffic plastic drums, and if ordered by the Engineer, the traffic plastic drums shall be moved from location to location and the cost thereof will be paid for as extra work as provided in Section 4-1.03D. Traffic plastic drums which are used as part of traffic control system in place of cones, delineators or barricades or which are used in place of those portable delineators, cones or Type I or II barricades specified in "Public Safety" elsewhere in these special provisions or which are placed in excess of the number specified or shown will not be included in the count of traffic plastic drums to be paid for.

The contract unit price paid for traffic plastic drum shall include full compensation for furnishing all labor, materials (including ballast), tools, equipment, and incidentals, and for doing all the work involved in furnishing, placing,

maintaining, repairing, replacing and removing the traffic plastic drum, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**10-1.23 CHANNELIZERS**

Channelizers shall be surface mounted type and shall be furnished, placed and maintained at the locations shown on the plans and shall conform to the provisions in Sections 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Channelizers shall conform to the provisions in "Prequalified and Tested Signing and Delineation Materials," elsewhere in these special provisions.

At the option of the Contractor, channelizer bases may be cemented to the pavement using hot melt bitumen adhesive and in the same manner provided for cementing pavement markers to pavement in the section of these special provisions entitled "Pavement Markers."

**10-1.24 TEMPORARY CRASH CUSHION MODULE**

This work shall consist of furnishing, installing and maintaining sand filled temporary crash cushion modules in groupings or arrays at each location shown on the plans, specified in the special provisions or directed by the Engineer. The grouping or array of sand filled modules shall form a complete sand filled temporary crash cushion in accordance with the details shown on the plans and these special provisions.

Attention is directed to "Public Safety" and "Order of Work" of these special provisions.

**GENERAL.--**Whenever the work or the Contractor's operations establishes a fixed obstacle, the exposed fixed obstacle shall be protected with a sand filled temporary crash cushion. The sand filled temporary crash cushion shall be in place prior to opening the lanes adjacent to the fixed obstacle to public traffic.

Sand filled temporary crash cushions shall be maintained in place at each location, including times when work is not actively in progress. Sand filled temporary crash cushions may be removed during a work period for access to the work provided that the exposed fixed obstacle is 15 feet or more from a lane carrying public traffic and the temporary crash cushion is reset to protect the obstacle prior to the end of the work period in which the fixed obstacle was exposed. When no longer required, as determined by the Engineer, sand filled temporary crash cushions shall be removed from the site of the work.

**MATERIALS.--**At the Contractor's option, the modules for use in sand filled temporary crash cushions shall be either of the following types or equal:

Energite Inertial Modules

| Manufacturer: | Distributor(Northern): | Distributor(Southern): |
|---|---|---|
| Energy Absorption Systems, Inc.<br>One East Wacker Drive<br>Chicago, IL 60601-2076<br>Telephone (312) 467-6750 | Traffic Control Service, Inc.<br>8585 Thys Court<br>Sacramento, CA 95828<br>Telephone (800) 884-8274<br>FAX (916) 387-9734 | Traffic Control Service, Inc.<br>1881 Betmor Lane<br>Anaheim, CA 92805<br>Telephone (800) 222-8274 |

or Fitch Inertial Modules

| National Distributor: | Distributor: |
|---|---|
| Roadway Safety Service, Inc.<br>700-3 Union Parkway<br>Ronkonkoma, NY 11779 | Singletree Sales Company<br>1533 Berger Drive<br>San Jose, CA 95112<br>Telephone (800) 822-7735 |

Modules contained in each temporary crash cushion shall be of the same type at each location. The color of the modules shall be the standard yellow color as furnished by the vendor, with black lids. The modules shall exhibit good workmanship free from structural flaws and objectionable surface defects. The modules need not be new. Good used undamaged modules conforming to color and quality of the types specified above may be utilized. If used Fitch modules requiring a seal are furnished, the top edge of the seal shall be securely fastened to the wall of the module by a continuous strip of heavy duty tape.

Modules shall be filled with sand in accordance with the manufacturer's directions, and to the sand capacity in pounds for each module as shown on the plans. Sand for filling the modules shall be clean washed concrete sand of commercial quality. At the time of placing in the modules, the sand shall contain not more than 7 percent water, as determined by California Test 226.

Modules damaged due to the Contractor's operations shall be repaired immediately by the Contractor at his expense. Modules damaged beyond repair, as determined by the Engineer, due to the Contractor's operations shall be removed and replaced by the Contractor at his expense.

**INSTALLATION.--**Temporary crash cushion modules shall be placed on movable pallets or frames conforming to the dimensions shown on the plans. The pallets or frames shall provide a full bearing base beneath the modules. The modules and supporting pallets or frames shall not be moved by sliding or skidding along the pavement or bridge deck.

A Type R or P marker panel shall be attached to the front of the crash cushion as shown on the plans, when the closest point of crash cushion array is within 12 feet of the traveled way. The marker panel, when required, shall be firmly fastened to the crash cushion with commercial quality hardware or by other methods approved by the Engineer.

At the completion of the project, temporary crash cushion modules, sand filling, pallets or frames, and marker panels shall become the property of the Contractor and shall be removed from the site of the work. Temporary crash cushion modules shall not be installed in permanent work.

**MEASUREMENT AND PAYMENT.--**Temporary crash cushion modules will be measured by the unit determined from the actual count of modules used in the work or ordered by the Engineer at each location. Temporary crash cushion modules placed in accordance with the provisions in "Public Safety" elsewhere in these special provisions and modules placed in excess of the number specified or shown will not be measured nor paid for.

Repairing modules damaged by public traffic will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications. Modules damaged beyond repair by public traffic, when ordered by the Engineer, shall be removed and replaced immediately by the Contractor. Modules replaced due to damage by public traffic will be measured and paid for as temporary crash cushion module.

If the Engineer orders a lateral move of sand filled temporary crash cushions and the repositioning is not shown on the plans, moving the sand filled temporary crash cushion will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications and such temporary crash cushion modules will not be counted for payment in the new position.

The contract unit price paid for temporary crash cushion module shall include full compensation for furnishing all labor, materials (including sand, pallets or frames and marker panels), tools, equipment and incidentals, and for doing all work involved in furnishing, installing, maintaining, moving and resetting during a work period for access to the work, and removing from the site of the work when no longer required (including those damaged by public traffic) the sand filled temporary crash cushion modules, complete in place, as shown on the plans, as specified in these special provisions and as directed by the Engineer.

### 10-1.25 EXISTING HIGHWAY FACILITIES

The work performed in connection with various existing highway facilities shall conform to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

Except as otherwise provided for damaged materials in Section 15-2.04, "Salvage," of the Standard Specifications, the materials to be salvaged shall remain the property of the State, and shall be cleaned, packaged, bundled, tagged, and hauled to the District recycle center at 11900 Singer Lane, San Diego, CA 92077 and stockpiled.

The Contractor shall notify the Engineer and the District Recycle Coordinator, telephone (619)467-3293, or by FAX (619) 467-3294 a minimum of 48 hours prior to hauling salvaged material to the Recycle Center.

Once notified the Recycle Center will make arrangements to receive material between the hours of 8:00 a.m. and 12: p.m. on Wednesday or Friday.

Plans of the existing bridges may be requested by fax from the Office of Structure Maintenance and Investigations, 1801 30th Street, Sacramento, California, Fax (916) 227-8357, and are available at the Office of Structure Maintenance and Investigations, Los Angeles, California, Telephone (213) 620-3812.

Plans of existing bridges available to the Contractor are reproductions of the original contract plans with significant changes noted and working drawings and do not necessarily show normal construction tolerances and variances. Where dimensions of new construction required by this contract are dependent on the dimensions of existing bridges, the Contractor shall verify the controlling field dimensions and shall be responsible for adjusting dimensions of the work to fit existing conditions.

Attention is directed to Section 7-1.06, "Safety and Health Provisions," of the Standard Specifications. Work practices and worker health and safety shall conform to the Cal/OSHA Safety Orders Title 8, of the California Code of Regulations including Section 5158, "Other Confined Space Operations."

Existing footing concrete which is below ground and outside of the footing limits shown on the contract plans or original contract plans shall be removed as directed by the Engineer and such work will be paid for as extra work as provided in Section 4-l.03D of the Standard Specifications.

When removing and replacing restrainers, not more than 50 percent of the existing restrainers shall be removed at any time at any joint without being replaced with an equal proportion of new restrainers which are anchored in accordance with the details shown on the plans. All removal and replacement shall be done symmetrically about the center line of the existing bridge.

**10-1.25A SALVAGE METAL BEAM GUARD RAILING**

Existing metal beam guard railing, where shown on the plans to be salvaged, shall be removed and salvaged.

Existing concrete anchors shall be removed to a depth of not less than one foot below subgrade or one foot below finished grade, whichever is greater in depth. Full compensation for removing concrete anchors shall be considered as included in the contract price paid per linear foot for salvage metal beam guard railing and no separate payment will be made therefor.

Full compensation for removing cable anchor assemblies shall be considered as included in the contract price paid per linear foot for salvage metal beam guard railing and no separate payment will be made therefor.

**10-1.25B REMOVE PAVEMENT MARKERS**

Existing pavement markers, when no longer required for traffic lane delineation as directed by the Engineer, shall be removed and disposed of.

Full compensation for removing and disposing pavement markers shall be considered as included in the contract price paid per ton for asphalt concrete and no separate payment will be made therefor.

**10-1.25C REMOVE TRAFFIC STRIPES AND PAVEMENT MARKINGS**

Traffic stripes and pavement markings to be removed will be designated by the Engineer.

Where blast cleaning is used for the removal of traffic stripes and pavement markings or for removal of objectionable material, and such removal operation is being performed within 10 feet of a lane occupied by public traffic, the residue including dust shall be removed immediately after contact between the sand and the surface being treated. Such removal shall be by a vacuum attachment operating concurrently with the blast cleaning operation.

Nothing in these special provisions shall relieve the Contractor from his responsibilities as provided in Section 7-1.09, "Public Safety," of the Standard Specifications.

Existing traffic stripe may be paint, pavement tape or thermoplastic.

**10-1.25D REMOVE DRAINAGE FACILITIES**

Existing inlets, where any portion of such structures is within 3 feet of the grading plane in excavation areas, or within one foot of original ground in embankment areas, or where shown on the plans to be removed, shall be completely removed and disposed of.

**10-1.25E RECONSTRUCT CHAIN LINK FENCE**

Existing chain link fence, of the types shown in the Engineer’s estimate, shall be removed and reconstructed as shown on the plans.

Fence removed in excess of that required for reconstructing chain link fence, of the types shown in the Engineer’s estimate, shall be reconstructed at the Contractor’s expense.

Gates shown on the plans to be reconstructed will be measured and paid for as reconstruct fence for the type of fence involved.

**10-1.25F RESET FENCE**

Existing fence shall be removed and reset at the locations shown on the plans.

Fence removed in excess of that required for reset chain link fence shall be reset at the Contractor's expense.

Gates shown on the plans to be reset will be measured and paid for as reset fence.

**10-1.25G RECONSTRUCT METAL BEAM GUARD RAILING**

Existing metal beam guard railing, where shown on the plans to be reconstructed, shall be reconstructed as shown on the plans.

Attention is directed to "Order of Work" of these special provisions regarding the reconstruction of guard railing at locations exposed to public traffic.

Existing metal beam guard railing to be reconstructed shall be disassembled by removing the rail elements, end sections and terminal sections from the posts and blocks. Posts and blocks shall be removed completely and concrete anchors shall be removed to a depth of not less than one foot below the adjacent finished grade.

Where field cutting or boring of wood posts and blocks is required after treatment, all cuts and holes shall be treated with copper naphthenate as specified in AWPA Standard M4. Application of preservative in the field shall conform to the requirements in the last paragraph in Section 58-1.04, "Wood Preservative for Manual Treatment," of the Standard Specifications.

New metal beam guard rail elements and required new backup plates, terminal sections, end sections, and return sections shall conform to the requirements of Type 2 W-Beam as shown in AASHTO Designation: M 180.

All metal components of the removed metal beam guard railing that are not used in the reconstruction work, excluding any damaged components, shall be salvaged. Damaged metal components and other components of the removed guard railing that are not used in the reconstruction work shall be disposed of.

Full compensation for removing, disposing and salvaging of metal components, including cable anchor assemblies, not used in the reconstruction work shall be considered as included in the contract price paid per linear foot for reconstruct metal beam guard railing and no separate payment will be made therefor.

**10-1.25H RESET ROADSIDE SIGNS**

Existing roadside signs shall be removed and reset as shown on the plans.

Each roadside sign shall be reset on the same day said sign is removed.

Two holes shall be drilled in each existing post as required to provide a breakaway feature as shown on the plans. Rset roadside signs will be measured and paid for as relocate road sign signs.

**10-1.25I RELOCATE ROADSIDE SIGNS**

Existing roadside signs shall be removed and relocated at new locations shown on the plans.

Each roadside sign shall be installed at the new location on the same day said sign is removed from its original location.

Two holes shall be drilled in each existing post as required to provide a breakaway feature as shown on the plans.

**10-1.25J MODIFY PLAYGROUND**

This work shall consist of furnishing, installing and maintaining playground equipment and rubberized surface (TotTurf), removing a portion of existing wall and salvaging existing playground equipment.

Playground equipment and the rubberized surface shall be installed at the locations designated by the Engineer.

Existing playground equipment shown on the plans to be salvaged shall be salvaged and delivered to the Engineer.

Existing block wall shall be removed to the limits as shown on the plans. Mortar used for the cap shall conform to Section 51, “Concrete Structures,” of the Standard Specifications.

**MATERIALS.--**At the Contractor’s option, the playground equipment shall consist of KidBuilders 96 W/Loop Climber Model No. KB96M, and Kids Riders Spring Events, Horse with Yellow body and blue seat for 12 inch of groundcover Model No. LTCPS-SR101-JM-2, The Whale - Blue Whale, for 12 inch ground cover, sand mount Model No. LTCPS-SR104-M-2 and ATV-Spring Ride blue with yellow rails Model No. LTCPS-SR107-MJ-2, as manufactured by the Little Tikes Commercial Play Systems Inc. and TotTurf manufactured by Robertson Industries, Inc. or equal.

**Playground Equipment**

| Manufacturer: | Distributor: |
|---|---|
| Little Tikes Commercial Play Systems Inc.<br>One Iron Mountain Drive<br>P.O. Box 897<br>Farmington, Missouri 63640<br>Tele. (573) 756-4591<br>FAX (573) 756-0319 | Pacific Design Concepts<br>P.O. Box 1909<br>Huntington Beach, CA. 92647<br>Tele. (714) 846-4885<br>FAX (714) 846-3485 |

The price quoted by the manufacturer for the playground equipment, FOB Job Site, San Diego, California, is $12574.97 including sales tax.

The above price will be firm for all orders placed on or before December 31, 1998, provided delivery is accepted within 30 days after the order is placed.

**Rubberized Surface**

TotTurf

Manufacturer/Distributor:

Robertson Industries, Inc.
2146 W. Sherman
Phoenix, Arizona 85009
Tele. (602) 340-8873
FAX (602) 340-0402

The price quoted by the manufacturer for the above rubberized surfacing, FOB San Diego, California, is $7004.50, not including sales tax.

The above price will be firm for all orders placed on or before June 10 1999.

Concrete shall conform to Section 90-10, “Minor Concrete,” of the Standard Specifications.

Treated permeable base shall be cement treated and shall conform to the provisions in Section 29, "Treated Permeable Bases," of the Standard Specifications.

The playground equipment and rubberized surface shall exhibit good workmanship free from structural flaws and objectionable surface defects.

Playground equipment or rubberized surface damaged due to the Contractor's operations shall be removed and replaced by the Contractor at his expense. Replacement, when ordered by the Engineer, shall be completed immediately by the Contractor. If the equipment or surface is damaged by the public and the Engineer orders the item replaced the replacement will be paid for as extra work as provided in Section 4-l.03D of the Standard Specifications.

**INSTALLATION.--** Playground equipment and rubberized surface shall be installed as per the manufacturer’s recommendations.

Sand removed for the installation of the rubberized surface shall be placed in the remaining area of the playground in a uniform manner.

Installation of the playground shall be completed by the first week of the month of March following approval of the contract. In the event satisfactory progress is not maintained, the Engineer may order suspension of such nonconflicting work.

**MEASUREMENT AND PAYMENT.--**The contract lump sum price paid for modify playground shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in modify playground complete in place, including salvage, as shown on the plans, as specified in these special provisions and as directed by the Engineer.

**10-1.25K BRIDGE REMOVAL**

Removing portions of bridge shall conform to the requirements in Section 15-4, "Bridge Removal," of the Standard Specifications and these special provisions.

Bridge removal consists of removing portions of existing structures as follows:

LOCATION A
Dewey Street Pedestrian Overcrossing
(Bridge No. 57-856)

Remove portions of footing, backwall and column, as shown on the plans.

LOCATION B
N5-S75 Connector Overcrossing
(Bridge No. 57-846G)

Remove restrainers, bearing plates and portions of footings, diaphragms and columns, as shown on the plans.

LOCATION C
N75-S5 Connector Overcrossing
(Bridge No. 57-847G)

Remove restrainers and portions of diaphragms and bent caps, as shown on the plans.

LOCATION D
N75-N5 Connector Overcrossing
(Bridge No. 57-912G)

Remove portions of footings, diaphragms and columns, as shown on the plans.

LOCATION E
S5-S75 Connector Overcrossing
(Bridge No. 57-939H)

Remove restrainers, bearing plates and portions of diaphragms, as shown on the plans.

All removed materials that are not to be salvaged or used in the reconstruction shall become the property of the Contractor and shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications.

Full compensation for relocating existing picket railing shall be considered as included in the contract lump sum price paid for bridge removal (portion), location A, and no separate payment will be made therefor.

The following additional requirements apply to the removal of portions of bridges whenever the removal work is to be performed over traffic:

A protective cover supported by falsework or members of the existing structure shall be constructed before beginning bridge removal work.

The construction and removal of the protective cover and the installation and removal of temporary railings shall conform to the requirements under "Order of Work," "Maintaining Traffic", "Art Protection Plan" and "Temporary Railings" of these special provisions.

The protective cover shall prevent any materials, equipment or debris from falling onto traffic. The protective cover shall have a minimum strength equivalent to that provided by good, sound Douglas fir planking having a nominal thickness of 2 inches. Additional layers of material shall be furnished as necessary to prevent fine materials or debris from sifting down upon the traveled way and shoulders.

The protective cover shall conform to the provisions for falsework in Section 51-1.06, "Falsework," of the Standard Specifications.

The Contractor shall be responsible for designing and constructing a safe and adequate protective cover, and shoring and falsework needed to support the protective cover, all with sufficient strength and rigidity to support the entire load to be imposed.

Bridge removal methods shall be described in the working drawings and calculations in sufficient detail to substantiate live loads used in the protective cover design. Dead and live load values assumed for designing the protective cover shall be shown on the working drawings.

Before removal, the protective cover shall be cleaned of all debris and fine material.

The protective cover shall provide the openings specified under "Maintaining Traffic" of these special provisions, except that when no openings are specified for bridge removal a vertical opening of 15 feet and a horizontal opening of 32 feet shall be provided for the passage of public traffic.

Falsework or supports for protective cover shall not extend below the vertical clearance level nor to the ground line at any location within the roadbed.

The construction of the protective cover as herein specified shall in no way be construed to relieve the Contractor of his responsibility as specified in Section 7-1.12, "Responsibility for Damage," of the Standard Specifications.

**10-1.25L ACCESS OPENING, SOFFIT**

Access opening, soffit, shall consist of removing portions of existing box girder bridge soffits at the locations and to the dimensions shown on the plans.

A 3/4 inch deep saw cut shall be made around the perimeter of soffit areas to be removed.

Bar reinforcing steel shall be removed as shown on the plans. The ends of the remaining bars shall be coated with 2 applications of zinc-rich primer in the same manner as specified for exposed ends of prestressing steel in Section 50-1.05, "Prestressing Steel," of the Standard Specifications.

Within a cell where work is to be performed, any existing formwork and miscellaneous concrete that will interfere with the work shall be removed. In addition, when the work is to be done in a cell that adjoins a bent cap, all existing forms and sharp projections in the cell between the bent cap and 5 feet past the access opening shall be removed.

All material removed shall become the property of the Contractor and shall be disposed of away from the site as provided in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

When no longer required, soffit access openings shall be closed as shown on the plans. All materials, including galvanized sheet metal covers, steel hardware, hinges and corrosion resistant concrete expansion anchorage devices, shall be commercial quality.

An approved thread locking system, consisting of a cleaner, primer and anaerobic adhesive, shall be applied where shown on the plans. Lubricants and foreign materials shall be removed from the threaded areas of both parts using the cleaner and small wire brush. The primer shall be applied to cover the threaded areas of both parts. The anaerobic adhesive shall be applied to fill the male threads in the area of the final position of the nut. The nut shall be installed at the location or to the torque shown on the plans, and an additional fillet of anaerobic adhesive shall be applied completely around the exposed junctions of the nut and male part.

Unless specified as an option, using deck access openings in lieu of soffit access openings will not be allowed.

Access openings through soffits will be measured and paid for by the unit as access opening, soffit. Openings to be paid for will be determined from actual count of the completed units in place.

The contract unit price paid for access opening, soffit shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the soffit access opening, complete in place, including closing the soffit access opening and removing forms and miscellaneous concrete, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### 10-1.25M REMOVE CONCRETE

Concrete, designated on the plans to be removed, shall be removed.

Attention is directed to concrete barrier elsewhere in these special provisions.

The pay quantities of concrete and flagstone to be removed will be measured by the cubic yard, and concrete barrier and concrete barrier (Type 50) will be measured by the linear foot, measured before and during removal operations.

Concrete removed shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications.

Where no joint exists between concrete to be removed and concrete to remain in place, the concrete shall be cut in a neat line to a minimum depth of 0.17-foot with a power driven saw before concrete is removed.

Concrete to be removed which has portions of the same structure both above and below ground will be considered as concrete above ground for compensation.

### 10-1.26 CLEARING AND GRUBBING

Clearing and grubbing shall conform to the provisions in Section 16, "Clearing and Grubbing," of the Standard Specifications and these special provisions.

At column, bent, footing and abutment locations, vegetation shall be cleared and grubbed only within the excavation lines. The Contractor shall make a reasonable effort to separate soil from vegetation, and the soils will remain on the site.

All activities controlled by the Contractor, except cleanup or other required work, shall be confined within the graded areas of the roadway.

### 10-1.27 WATERING

Watering shall conform to the provisions in Section 17, "Watering," of the Standard Specifications.

### 10-1.28 DUST PALLIATIVE

Furnishing and applying dust palliative shall conform to the provisions in Section 18, "Dust Palliative," of the Standard Specifications.

## 10-1.29 EARTHWORK

Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Standard Specifications and these special provisions.

The time to be provided for the Engineer's review of the working drawings for shoring or bracing for specific structures, or portions thereof, shall be 10 weeks.

### 10-1.29A MATERIAL WITH AERIALLY DEPOSITED LEAD

The existing material within the top 2 feet in unpaved areas is designated as containing aerially deposited lead. Materials excavated from this area shall be used as backfill within the excavation at the column, bent, footing or abutment from which the material was excavated. This material shall be placed a minimum of 2 feet above observed ground water and a minimum of one foot below finished grade. If the grade around the work area must be raised to accommodate the material, the grading shall be at the direction of the Engineer.

Material with aerially deposited lead greater than 50 mg/kg (parts per million) shall be segregated, and shall be covered and protected from both wind and water erosion. This material shall remain within the project limits, and shall not be stockpiled longer than 28 days without written approval of the Engineer.

Surplus excavated material designated as containing lead, which cannot be used as backfill or used to raise the grade of the work area shall be sampled at a rate of one sample per 10 cubic yards of material. The samples shall be analyzed for lead by EPA Method 6010 or 7000 and California Waste Extraction Test for Soluble Lead. Surplus material containing lead greater than 50 mg/kg shall be disposed of as directed by the Engineer. Surplus material containing lead less than 50 mg/kg shall become the property of the Contractor and shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications. Sampling and analyzing the surplus material, and transporting and disposing of the material containing lead greater than 50 mg/kg will be paid for as extra work in accordance with Section 4-1.03D of the Standard Specifications.

Full compensation for conforming to the requirements of this section, except for sampling and analyzing the surplus material, and transporting and disposing of the material containing lead greater than 50 mg/kg , shall be considered as included in the contract prices paid per cubic yard for structure excavation (bridge) and structure backfill (bridge) and no additional compensation will be allowed therefor.

## 10-1.30 IRRIGATION CROSSOVERS

Irrigation crossovers shall conform to the provisions in Section 20-5, "Irrigation Systems," of the Standard Specifications and these special provisions.

Irrigation crossovers shall include conduits, water line crossovers, sprinkler control crossovers and appurtenances. Sizes of the conduits, water line crossovers and sprinkler control crossovers shall be as shown in the table for "Irrigation Crossovers" in the plans.

Conduits shall be placed by jacking or drilling in accordance with the provisions in Section 20-5.03B, "Conduit for Water Line Crossovers and Sprinkler Control Crossovers," of the Standard Specifications.

Conduits shall be welded steel pipe.

Water line crossovers shall conform to the provisions in Section 20-5.03C, "Water Line Crossovers," of the Standard Specifications, and shall be polyvinyl chloride (PVC) plastic pipe, 1120 or 1220. PVC plastic pipe water line crossovers shall have a minimum pressure rating (PR) of 315 psi unless otherwise shown on the plans..

Sprinkler control crossovers shall conform to the provisions in Section 20-5.027D, "Sprinkler Control Crossovers," of the Standard Specifications.

Installation of pull boxes shall conform to the provisions in Section 20-5.027I, "Conductors, Electrical Conduit and Pull Boxes," of the Standard Specifications. When no conductors are installed in electrical conduits, pull boxes for irrigation crossovers shall be installed on a foundation of compacted soil.

Full compensation for sprinkler control crossovers, water line crossovers, pavement markers, and appurtenances, and for pressure testing water line crossover in the conduit shall be considered as included in the contract price paid per linear foot for 6 inch welded steel pipe conduit .250" thick)and no additional compensation will be allowed therefor.

## 10-1.31 AGGREGATE BASE

Aggregate base shall be Class 2 and shall conform to the provisions in Section 26, "Aggregate Bases," of the Standard Specifications and these special provisions.

The first paragraph of Section 26-1.02A, "Class 2 Aggregate Base," of the Standard Specifications is amended by adding the following sentences:

Aggregate may include or consist of material processed from reclaimed asphalt concrete, portland cement concrete, lean concrete base, cement treated base, glass or a combination of any of these materials. Aggregate base

incorporating reclaimed glass shall not be placed at locations where surfacing will not be placed over the aggregate base.

The fourth paragraph in said Section 26-1.02A, is amended by adding the following sentence:

Untreated reclaimed asphalt concrete and portland cement concrete will not be considered to be treated with lime, cement or other chemical material for purposes of performing the Durability Index test.

**10-1.32 ASPHALT CONCRETE**

Asphalt concrete shall be produced at an established commercial mixing plant. The aggregate and asphalt binder shall be heated and mixed thoroughly.

The maximum size aggregate shall be 3/4 inch, for dikes the maximum size aggregate shall be 3/8 inch.

Prior to spreading asphalt concrete, a paint binder of asphaltic emulsion or of paving asphalt shall be furnished and applied uniformly to a pavement to be surfaced and to contact surfaces of all cold pavement joints, curbs, gutters and to other surfaces designated by the Engineer. If paving asphalt is furnished it shall be applied at a temperature of not less than 285° F. nor more than 350° F.

Asphalt concrete shall be spread and compacted by methods that will produce an asphalt concrete surfacing true to grade and cross section, of uniform smoothness and texture, compacted firmly and free from depressions, humps or irregularities.

Asphalt concrete to be placed in areas designated on the plans as miscellaneous areas may be spread in one layer to the required line, grade and cross section and shall be compacted firmly.

Dikes shall be shaped and compacted with equipment capable of shaping and compacting the material to the required cross section.

Compensation for the work performed under this section "Asphalt Concrete," including the asphalt concrete, dikes, and surfacing miscellaneous areas, shall conform to the provisions in Section 39-8.01, "Measurement," and Section 39-8.02, "Payment," of the Standard Specifications.

Full compensation for furnishing and applying a fog seal coat of asphaltic emulsion shall be considered as included in the contract price paid per ton for asphalt concrete and no separate payment will be made therefor.

**10-1.33 PILING**

Piling shall conform to the provisions in Section 49, "Piling," of the Standard Specifications, and these special provisions.

Foundation recommendations are included in the "Materials Information" available to the Contractor as provided for in Section 2-1.03, "Examination of Plans, Specifications, Contract, and Site of Work," of the Standard Specifications

Attention is directed to the provisions of Section 7-1.09, "Public Safety," of the Standard Specifications. Before performing any pile handling or pile installation operation at any location that is closer than the length of the pile being handled or installed to the edge of any traveled way open to public use, the Contractor shall submit to the Engineer, as provided in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, a detail plan of the measures that will be employed to provide for the safety of traffic and the public.

The second paragraph of Section 49-1.03, "Determination of Length," of the Standard Specifications is amended to read:

The Contractor shall be responsible for furnishing piling of sufficient length to obtain the penetration and bearing value specified.

At the Contractor's option, the Contractor may conduct additional foundation investigation, including installing and axial load testing additional non production indicator piling. The Engineer shall approve locations of additional foundation testing. The Contractor shall notify the Engineer at least 5 working days prior to beginning additional foundation investigation.

Additional foundation investigation shall be completed prior to requesting revised specified pile tip elevations or modification to the installation methods specified herein. Revisions to specified tip elevations and modifications to the specified installation methods will be subject to the provisions of Section 5-1.14, "Cost Reduction Incentive," of the Standard Specifications.

Modification to the specified installation methods and specified pile tip elevation will not be considered at locations where lateral load demands control design pile tip elevations or when the plans state that specified pile tip elevation shall not be revised.

The pile structural capacity design is based on the nominal strength as defined in Caltrans Bridge Design Specifications (Article 8.1.3) or the nominal resistance as defined in the proposed LRFD Bridge Design Specifications (Article 1.3.2.1). The nominal resistance of the pile, as shown on the plans, is the design capacity required to resist the factored axial demands.

Indicator compression pile load testing shall conform to ASTM Designation: D 1143. The acceptance criteria for compression pile load testing is as follows:

The pile shall sustain the first compression test load applied which is equal to the nominal compression resistance, as shown on the plans, with no more than 0.5 inch total vertical movement at the top of the pile that is measured relative to the top of the pile prior to the start of compression load testing.

Indicator tension pile load testing shall conform to ASTM Designation: D 3689. The loading apparatus described as "Load Applied to Pile by Hydraulic Jack(s) Acting at One End of Test Beam(s) Anchored to the Pile" shall not be used. The acceptance criteria for tension pile load testing is as follows:

The pile shall sustain the first tension test load applied which is equal to the nominal tension resistance, as shown on the plans, with no more than 0.5 inch total vertical movement at the top of the pile that is measured relative to the top of the pile prior to the start of tension load testing.

Indicator piling shall be removed in conformance with the requirements in Section 15-4.02, “Removal Methods,” and the remaining holes shall be backfilled with earth or other suitable material approved by the Engineer.

Section 49-1.04, "Test Piles," of the Standard Specifications is renamed "Load Test Piles" and amended to read:

When load test piles and anchor piles are shown on the plans or specified for a structure, the loading tests using those piles shall be completed before the remaining piles for that structure or specified control location are drilled, cast, cut to length, or driven.

Load test piles shall be installed with the same type of equipment that is to be used for installation of foundation piles.

Load test piles which are shown on the plans or specified in the special provisions shall conform to the requirements for piling as specified in these specifications and, unless otherwise shown, shall be so located that they may be cut off and become a part of the completed structure.

Load test piles which are not to be incorporated in the completed structure shall be removed in conformance with the requirements in Section 15-4.02, “Removal Methods,” and the remaining holes shall be backfilled with earth or other suitable material approved by the Engineer.

Load test anchorages in piles used as anchor piles shall conform to the following requirements:

High strength threaded steel rods shall conform to the provisions for bars in Section 50-1.05, “Prestressing Steel,” except Type II bars shall be used.

High strength steel plates shall conform to the specifications of ASTM Designation: A 108, Grade 1040.

Anchor nuts shall conform to the provisions in the second paragraph in Section 50-1.06, “Anchorages and Distribution.”

The Contractor, at the Contractor's expense, may use additional cement or Type III cement in the concrete for the load test and anchor piles.

Testing of load test piles shown on the plans and specified in the special provisions will be performed by the Engineer without cost to the Contractor. The loading tests will be made when the concrete in the load test and anchor piles has developed a compressive strength of at least 2,000 pounds per square inch.

Should the Engineer fail to complete the load tests within the time specified in the special provisions and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in load testing of piles, an extension of time commensurate with the delay in completion of the work thus caused will be granted as provided in Section 8-1.09, "Right of Way Delays."

The Contractor shall furnish labor, materials, tools, equipment, and incidentals as required to assist the Engineer in the installation, operation and removal of State-furnished steel load test beams, State-furnished jacks, bearing plates, drills, and other test equipment. Payment for this work will be made as extra work in accordance with the provisions in Section 4-1.03D.

Section 49-1.05, “Driving Equipment," of the Standard Specifications is amended to read:

Driven piles shall be installed with impact hammers that are approved by the Engineer. Impact hammers shall be steam, air, diesel hammers, or drop hammers. Impact hammers shall have sufficient energy to drive the piles at a penetration rate of not less than 1/8 inch per blow at the specified penetration and specified bearing value.

The first sentence of the first paragraph in Section 49-1.08, “Bearing Value and Penetration,” of the Standard Specifications is amended to read:

Except for piles to be load tested, driven piles shall be driven to a bearing value of not less than the design loading shown on the plans unless otherwise specified in the special provisions or permitted in writing by the Engineer.

Section 49-1.10, “Load Testing," of the Standard Specifications is deleted.

The third paragraph in Section 49-2.03, “Requirements," of the Standard Specifications is amended to read:

Untreated and treated timber piles shall be of Douglas fir or Southern Pine timber and shall be clean peeled.

Paragraph 3 of Section 49-4.04, "Steel Shells," of the Standard Specifications is amended to read:

Steel shells shall conform to the requirements for unfilled pipe piles specified in Section 49-5, "Steel Piles."

Section 49-5.01, "Description," of the Standard Specifications is amended to read:

Steel piles shall include structural shape piles and unfilled pipe piles.

Structural shape piles shall be of the rolled section shown on the plans or of the section specified in the special provisions and shall be structural steel conforming to the specifications of ASTM Designation: A 36, or at the option of the Contractor, structural steel conforming to the specifications of ASTM Designation: A 572.

Unfilled pipe piles shall be steel pipe piles with the diameter and wall thickness of the piles shown on the plans unless otherwise specified in the special provisions. Unfilled pipe piles that are less than 14 inches in diameter shall conform to the specifications of ASTM Designation: A 252, Grade 2 or 3. Unfilled pipe piles that are 14 inches and greater in diameter shall conform to the specifications of ASTM Designation: A 252, Grade 3. At the option of the Contractor, steel pipe manufactured for other industrial uses with physical properties at least equivalent to A 252, Grade 3, may be used as long as the actual yield strength of the steel pipe piles, as shown on the mill certification, does not exceed 65 ksi, and the steel pipe is readily weldable. Additional manufacturing requirements for the diameter of steel pipe piling may be required to meet the steel pile splice welding requirements.

The Contractor shall be responsible for any requirements that are in addition to ASTM 252 specifications (including tolerances for maintaining diameter, circumference, roundness, and cross sectional area) that are required in order to conform with the following welding requirements for manufacturing, fabricating and splicing.

Structural shape piles and unfilled pipe piles shall not be lap spliced welded. Unfilled pipe piles shall be full penetration welded. Partial welds may be restored to full penetration welds in the field in conformance with AWS D1.1.

Difficult pile installation is anticipated due to the presence of high ground water, low overhead clearance and traffic control.

**CAST-IN-PLACE CONCRETE PILING.**--Cast-in-place concrete piling shall conform to the provisions in Section 49-4, “Cast-In-Place-Concrete Piling,” of the Standard Specifications and these special provisions.

**Materials.**--Concrete filling for cast-in-place concrete piles is designated by compressive strength and shall have a minimum 28-day compressive strength of 3500 pounds per square inch.

Aggregate grading shall conform to the requirements of Section 90-3, “Aggregate Gradings,” and these special provisions. The combined aggregate grading for the concrete shall be the 1” Max. grading.

At the Contractor's option, the Contractor may use either the 1/2" maximum combined aggregate grading or the 3/8" maximum combined aggregate grading. The grading requirements for the optional 1/2" maximum coarse aggregate or the 3/8" maximum coarse aggregate are shown in the following table:

| Percentage Passing Primary Aggregate Nominal Size | | | | |
|---|---|---|---|---|
| | 1/2"x No. 4 | | 3/8" x No. 8 | |
| Sieve Sizes | Operating Range | Contract Compli-ance | Operating Range | Contract Compli-ance |
| 3/4" | 100 | 100 | | |
| 1/2" | 82 - 100 | 80 - 100 | 100 | |
| 3/8" | X ± 15 | X ± 22 | X ± 15 | X ± 20 |
| No. 4 | 0 - 15 | 0 - 18 | 0 - 25 | 0 - 28 |
| No. 8 | 0 - 6 | 0 - 7 | 0 - 6 | 0 - 7 |

The gradation proposed by the Contractor for the optional 1/2" x No. 4 primary aggregate or for the 3/8" x No. 8 primary aggregate shall be within the following percentage passing limits:

| Primary Aggregate Nominal Size | Sieve Size | Limits of Proposed Gradation |
|---|---|---|
| 1/2" x No. 4 | 3/8" | 40 - 78 |
| 3/8" x No. 8 | 3/8" | 50 - 85 |

The combined aggregate grading for the 1/2" x No. 4 primary aggregate nominal size or for the 3/8" x No. 8 primary aggregate nominal size shall be within the following limits:

| Grading Limits of Combined Aggregate | | |
|---|---|---|
| | Percentage Passing | |
| Sieve Sizes | 1/2" Maximum | 3/8" Maximum |
| 3/4-inch | 100 | 100 |
| 1/2-inch | 90 - 100 | 90 - 100 |
| 3/8-inch | 55 - 86 | 55 - 86 |
| No. 4 | 45 - 63 | 45 - 63 |
| No. 8 | 35 - 49 | 35 - 49 |
| No. 16 | 25 - 37 | 25 - 37 |
| No. 30 | 15 - 25 | 15 - 25 |
| No. 50 | 5 - 15 | 5 - 15 |
| No. 100 | 1 - 8 | 1 - 8 |
| No. 200 | 0 - 4 | 0 - 4 |

The optional 1/2" x No. 4 and 3/8" x No. 8 aggregate gradations may require special mixing to meet grading requirements and may not be commercially available in some locations.

The fourth paragraph in Section 49-4.01, "Description," of the Standard Specifications is amended to read:

Cast-in-place concrete piles less than 24 inches in diameter shall be constructed so that the excavation methods and the concrete placement procedures shall provide for placing the concrete against undisturbed material in a dry or dewatered hole.

Cast-in-place concrete piles 24 inches in diameter or larger shall be constructed so that the excavation methods and the concrete placement procedures shall provide for placing the concrete against undisturbed material in a dry or dewatered hole or may be constructed by excavation and depositing concrete under slurry.

The concrete filling for cast-in-place concrete piles shall be dense and homogeneous. The methods used to place the concrete shall prevent segregation. Concrete placed in steel shells, dry drilled holes, or dewatered drilled holes shall not be permitted to fall from a height greater than 8 feet without the use of adjustable length pipes or tubes unless the flow of concrete is directed into the center of the hole using a hopper and not allowed to strike the reinforcement, reinforcement bracing and other objects in the hole.

Concrete filling for cast-in-place concrete piles shall be vibrated according to the requirements in the following table. The nominal and maximum penetrations shown below shall be used in lieu of the penetrations listed in the table in Section 90-6.06, "Amount of Water and Penetration."

| Cast-in-place Concrete Piles | Pile Size | Concrete Penetration, Inches (Note 1) | | Concrete Vibration Required |
|---|---|---|---|---|
| | | Nominal | Maximum | |
| Steel Shells or Dry Holes or Dewatered Holes | All sizes | 2 1/2 to 3 1/2 | 4 (Note 2) | Upper 15 feet of pile |
| Under Slurry | 24" and larger in diameter | equal to or greater than 3 1/2 | (Note 2) | Upper 5 feet of pile (Note 3) |

Note 1: Type F or Type G chemical admixtures may be required to achieve the specified penetration. When admixtures are used in accordance with the requirements in Section 90-4, "Admixtures," the penetration of the concrete will be measured after the admixture is added.

Note 2: Concrete shall be proportioned to prevent excessive bleed water and segregation.

Note 3: Concrete placed under slurry shall not be vibrated until any temporary casing is removed and until concrete contaminated with soil, slurry, or other materials are removed.

Section 51-1.10, "Concrete Deposited Under Water," shall not apply to cast-in-drilled-hole concrete piling. Concrete deposited under slurry shall contain not less than 658 pounds of cement per cubic yard.

**Construction.**--The Contractor shall submit a placing plan to the Engineer for approval prior to producing the test batch for cast-in-drill hole piling and at least 10 working days prior to constructing piling. The plan shall include complete description, details, and supporting calculations as listed below:

Requirements for all cast-in-drilled hole piling:

1. Concrete mix design, certified test data, and trial batch reports.
2. Drilling methods and equipment.
3. Proposed casing installation and removal when necessary.
4. Placing, positioning and supporting bar reinforcement.
5. Methods and equipment for accurately determining the depth of concrete and actual and theoretical volume placed, including effects on volume of concrete when any casings are withdrawn.

Additional requirements when concrete is placed under slurry:

6. Concrete batching, delivery, and placing systems with time schedules and capacities therefor.
7. Concrete placing rate calculations. When requested by the Engineer, calculations shall be based on the initial pump pressures or static head on the concrete and losses throughout the placing system, including anticipated head of slurry and concrete to be displaced.
8. Suppliers test reports on the physical and chemical properties of the slurry and any proposed slurry chemical additives including Material Safety Data Sheet.

9. Slurry testing equipment and procedures.
10. Removal and disposal of excavation, slurry, and contaminated concrete, including methods and rates of removal.
11. Slurry agitating, recirculating, and cleaning methods and equipment.

In addition to compressive strength requirements, the consistency of the concrete to be deposited under slurry shall be verified before use by producing a batch to be tested. The test batch shall be produced and delivered to the job under conditions and in time periods similar to those expected during the placement of concrete in the piles. Concrete for the test batch shall be placed in an excavated hole or suitable container of adequate size to allow testing in accordance with California Test 533. Depositing of test batch concrete under slurry will not be required. The test batch shall demonstrate that the proposed concrete mix design achieves the specified nominal penetration and a penetration of at least 2 inches after 4 hours. The time period shall begin at the start of placement. The concrete shall not be vibrated or agitated during the test period. Upon completion of testing, the concrete shall be disposed of in accordance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," unless otherwise approved in writing by the Engineer.

When slurry is used, the slurry level shall be maintained within one foot of the top of the drilled hole unless otherwise approved in writing by the Engineer.

The concrete deposited under slurry shall be carefully placed in a compact, monolithic mass and by a method that will prevent washing of the concrete. Placing concrete shall be a continuous operation lasting not more than 2 hours between placing the first load of concrete and completion of placing the final load of concrete in the pile, unless otherwise approved in writing by the Engineer. The concrete shall be placed with concrete pumps and delivery tube system of adequate number and size to complete the placing of concrete in the time specified. The delivery tube system shall consist of one of the following:

1. A tremie tube or tubes which are each at least 10-inches in diameter fed by one or more concrete pumps.
2. One or more concrete pump tubes each fed by a single concrete pump.

The delivery tube system shall consist of watertight tubes with sufficient rigidity to keep the ends always in the mass of concrete placed. If only one delivery tube is utilized to place the concrete, the tube shall be placed near the center of the drilled hole. Multiple tubes shall be uniformly spaced in the hole. Internal bracing for the steel reinforcing cage shall accommodate the delivery tube system. Tremies shall not be used for piles without space for a 10-inch tube.

When slurry is used, a fully operational standby concrete pump, adequate to complete the work in the time specified, shall be provided at the site during concrete placement.

Spillage of concrete into the slurry during concrete placing operations shall not be allowed. Delivery tubes shall be capped at the end of the tube with a water tight cap, or plugged above the slurry level with a good quality, tight fitting, moving plug that will expel the slurry from the tube as it is charged with concrete. The cap or plug shall be designed to be released as the tube is charged. The pump discharge or tremie tube shall extend to the bottom of the hole before charging the tube with concrete. After charging the delivery tube system with concrete, the flow of concrete through a tube shall be induced by slightly raising the discharge end. During concrete placement, the tip of the delivery tube shall be maintained to prevent reentry of the slurry into the tube. Until at least 10 feet of concrete has been placed, the tip of the delivery tube shall be within 6 inches of the bottom of the drilled hole, and then the embedment of the tip shall be maintained at least ten feet below the top surface of the concrete. Rapid raising or lowering of the delivery tube shall not be permitted. If the seal is lost or the delivery tube becomes plugged and must be removed, the tube shall be withdrawn, the tube cleaned, the tip of the tube capped to prevent entrance of the slurry, and the operation restarted by pushing the capped tube 10 feet (or to the bottom of the pile, which ever is less) into the concrete and then reinitiating the flow of concrete.

A log of the placing of the concrete in each drilled hole shall be maintained by the Contractor when concrete is deposited under slurry. The log shall show the pile location, tip elevation, dates of excavation and concrete placement, total quantity of concrete deposited, length and tip elevation of any casing, and details of any hole stabilization method and materials used. The log shall include an 8 1/2" x 11" sized graph of the concrete placed versus depth of hole filled. The graph shall be plotted continuously throughout placing of concrete. The depth of drilled hole filled shall be plotted vertically with the pile tip oriented at the bottom and the quantity of concrete shall be plotted horizontally. Readings shall be made at least at each 5 foot of pile depth, and the time of the reading shall be indicated. The graph shall be labeled with the pile location, tip elevation, cutoff elevation, and the dates of excavation and concrete placement. The log shall be delivered to the Engineer within one working day of completion of placing concrete in the pile.

The first paragraph of Section 49-4.03, "Drilled Holes," of the Standard Specifications is amended to read:

Except for cast-in-place piling for soundwalls and retaining walls, when cast-in-place concrete piling is less than 24 inches in diameter, the Contractor may propose to increase the diameter and revise the pile tip elevation. The Contractor may propose to increase the diameter of cast-in-place piling for soundwalls and retaining walls, but the

pile tip elevations shall not be revised. No additional compensation for delays will be allowed for the Contractor's use of increased diameter cast-in-place concrete piling.

The second through seventh paragraphs of Section 49-4.03, "Drilled Holes," of the Standard Specifications are amended to read:

The axis of the hole shall not deviate from plumb more than 1 1/2 inches per 10 feet of length.

Care shall be taken during excavation to prevent disturbing the foundation material surrounding the pile. Equipment or methods used for excavating holes shall not cause quick soil conditions or cause scouring or caving of the hole. After excavation is begun, the pile shall be constructed in a continuous and expeditious manner in order to prevent deterioration of the surrounding foundation material from air slaking or from the presence of water. Deteriorated foundation material, including material that has softened, swollen or degraded, shall be removed from the sides and the bottom of the hole and shall be disposed of. The bottom of the drilled hole shall be cleaned just before placing reinforcement or concrete to remove any loose sand, gravel, dirt, and drill cuttings.

After placing reinforcement and prior to placing concrete in the drilled hole, if caving occurs or deteriorated foundation material accumulates on the bottom of the hole or drill cuttings settle out of slurry, as determined by the Engineer, the reinforcement shall be removed and the bottom of the drilled hole cleaned.

Water that has infiltrated the hole shall be removed before placing concrete therein except when concrete is deposited under slurry. Fluvial or drainage water shall not be permitted to enter the hole.

Temporary steel casings shall be furnished and placed tight in the hole where shown on the plans and where necessary to control water or to prevent quick soil conditions or caving of the hole. Temporary casing shall be watertight and of sufficient strength to withstand the loads from installation, removal, lateral concrete pressures and earth pressures. The casing shall be non-corrugated and the surfaces shall be smooth, clean and free from hardened concrete. The casing shall be removed while the concrete is being placed. In a dewatered hole the concrete in the casing shall be maintained at a level at least 5 feet above the bottom of the casing or at a level above the bottom of the casing adequate to prevent displacement of the concrete by material from outside the casing, whichever is greater. When concrete is placed under slurry, the concrete in the casing shall be maintained at a level at least 5 feet above the bottom of the casing. Casing may be vibrated or hammered when required to assist in removal of the casing from the hole, to prevent lifting of the reinforcement, and to prevent concrete contamination. The withdrawal of casings shall not leave voids or cause contamination of the concrete with soil, water, slurry or other materials, or cause segregation of the concrete.

Portions of the holes may be enlarged, backfilled with slurry cement backfill, concrete, or other material, and redrilled to the specified diameter to control caving. Backfill material at enlarged piles shall be chemically compatible with concrete and steel, shall be drillable, and shall have the necessary strength required for the conditions.

Drill cuttings shall be disposed of in accordance with the provisions in Section 19-2.06, "Surplus Materials," of the Standard Specifications. Material resulting from placing concrete in piles, including slurry, shall be disposed of in accordance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," unless otherwise permitted in writing by the Engineer.

The second and third paragraphs of Section 49-4.05, "Inspection," of the Standard Specifications are amended to read:

Driven shells and dewatered drilled holes shall be clean and free of water before reinforcement and concrete are placed.

The Contractor shall have available at all times a suitable light for inspecting the entire length of the shells or dewatered holes before placing the reinforcement and concrete.

**Inspection Pipes.--**Vertical inspection pipes shall be provided in all cast-in-drilled hole piles that are 24 inches in diameter or larger, except when the holes are dry or when the holes are dewatered without the use of temporary casing.

Inspection pipes shall be Schedule 40 polyvinyl chloride pipe with an inside diameter of 2 inches. Each inspection pipe shall be capped top and bottom and shall have watertight couplers to provide a clean, dry and unobstructed 2-inch diameter clear opening from 2 feet above the pile cutoff down to the specified tip elevation.

Inspection pipes shall be placed around the pile, inside the spiral or hoop reinforcement, and 3 inches clear of the vertical reinforcement, at a uniform spacing not exceeding 2 feet 9 inches measured along the circle passing through the centers of inspection pipes. A minimum of 2 inspection pipes per pile shall be used. When the vertical reinforcement is not bundled and each bar is not more than one inch in diameter, inspection pipes may be placed 2 inches clear of the

vertical reinforcement. The pipes shall be installed in straight alignment and securely fastened in place to prevent misalignment during installation of the reinforcement and placing concrete in the hole.

The Contractor shall log the location of the inspection pipe couplers with respect to the plane of pile cut off, and these logs shall be delivered to the Engineer upon completion of the placement of concrete in the drilled hole.

After placing concrete and before requesting structural adequacy tests, each inspection pipe shall be tested by the Contractor in the presence of the Engineer by passing a 1.90 inch diameter rigid cylinder 2 feet long through the complete length of pipe. The Contractor shall replace each inspection pipe that the cylinder does not pass through with a 2-inch diameter hole cored through the concrete for the entire length of the pile. Cored holes shall be located approximately 9 inches inside the reinforcement, and coring shall not damage the pile reinforcement.

Cored holes shall be made with a split tube type core barrel. Coring methods and equipment shall provide intact cores for the entire length of the pile concrete. The coring operation shall be logged by an Engineering Geologist or Civil Engineer licensed in the state of California and experienced in core logging. Coring logs shall include complete descriptions of inclusions and voids encountered during coring, and shall be delivered to the Engineer upon completion. Concrete cores shall be preserved, identified as to location and made available for inspection by the Engineer.

Structural adequacy tests of the concrete will be made by the Engineer, without cost to the Contractor. Tests will include gamma ray. Tests may also include cross-hole sonic logging and other means of inspection selected by the Engineer. After requesting structural adequacy tests, the Contractor shall allow 15 working days for the Engineer to conduct these tests. Should the Engineer fail to complete such tests within the time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in inspection, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

If the Engineer determines that the concrete for a given pile is structurally inadequate, then that pile will be rejected and all depositing of concrete under slurry or concrete placed using temporary casing for the purpose of controlling groundwater shall be suspended until written changes to the methods of pile construction are approved in writing by the Engineer.

The Contractor shall submit to the Engineer for approval, a plan for repair, removal or replacement of the rejected piling. The plan shall include details for structural modifications as required. No extension of time or compensation will be made for the submittal and review of a mitigation plan for rejected piling.

All inspection pipes and cored holes shall be dewatered and filled with grout after tests are completed. Grout shall conform to the requirements in Section 50-1.09, "Bonding and Grouting," of the Standard Specifications. The inspection pipes and holes shall be filled using grout tubes that extend to the bottom of the pipe or hole or into the grout already placed.

**SLURRY**.--Slurry shall be commercial quality mineral or synthetic drilling slurry and shall conform the requirements of these special provisions

Water for slurry shall conform to the requirements in Section 90-2.03, "Water," of the Standard Specifications and these special provisions. Natural ground water in the drilled hole may be used for slurry when approved by the Engineer.

Slurry shall not weaken the bond between the concrete and both the reinforcement and the foundation material at the sides of the excavation.

The Contractor shall sample and test all slurry in the presence of the Engineer, unless otherwise directed. The date, time, names of the persons sampling and testing the slurry, and results of the tests shall be recorded and shall be approved by the Engineer before concrete is placed. A copy of slurry test results shall be delivered to the Engineer at the completion of each pile.

**Mineral--**Mineral slurry shall be mixed and thoroughly hydrated in slurry tanks, and slurry shall be sampled from the slurry tanks and tested before placement in the drilled hole.

Slurry shall be recirculated or continuously agitated in the drilled hole to maintain the specified properties.

Recirculation shall include removal of drill cuttings from the slurry before discharging the slurry back into the drilled hole. When recirculation is used, the slurry shall be sampled and tested at least every 2 hours after beginning its use until tests show that the samples taken form the slurry tank and from near the bottom of the hole have consistent specified properties. Subsequently, slurry shall be sampled at least twice per shift as long as the specified properties remain consistent.

Slurry that is not recirculated in the drilled hole shall be sampled and tested at least every two hours after beginning its use. The slurry shall be sampled midheight and near the bottom of the hole. Slurry shall be recirculated when tests show that the samples taken from midheight and near the bottom of the hole do not have consistent specified properties.

Slurry shall also be sampled and tested prior to final cleaning of the bottom of the hole and again just prior to placing concrete. Samples shall be taken from midheight and near the bottom of the hole. Cleaning of the bottom of the hole and placement of the concrete shall not start until tests show that the samples taken from midheight and near the bottom of the hole have consistent specified properties.

Mineral slurry shall be tested for conformance to the requirements shown in the following table:

| MINERAL SLURRY | | |
|---|---|---|
| PROPERTY | REQUIREMENT | TEST |
| Density (pcf)<br><br>- before placement in the drilled hole<br>- during drilling<br><br>- prior to final cleaning<br>- immediately prior to placing concrete | <br><br>64.3* to 69.1*<br><br><br>64.3* to 75.0* | <br><br>Mud Weight (Density)<br>API 13B-1<br>Section 1 |
| Viscosity (seconds/quart)<br><br>bentonite<br><br>attapulgite | <br><br>28 to 50<br><br>28 to 40 | <br>Marsh Funnel and Cup<br>API 13B-1<br>Section 2.2 |
| pH | 8 to 10.5 | Glass Electrode pH Meter or pH Paper |
| Sand Content (percent)<br><br>- prior to final cleaning<br>- immediately prior to placing concrete | <br><br>less than or equal to 4.0 | <br>Sand<br>API 13B-1<br>Section 5 |
| *When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf.<br>Slurry temperature shall be at least 40 degrees Fahrenheit (4 degrees Celsius) when tested. | | |

Any caked slurry on the sides or bottom of hole shall be removed before placing reinforcement. If concrete is not placed immediately after placing reinforcement, the reinforcement shall be removed and cleaned of slurry, the sides of the drilled hole cleaned of caked slurry, and the reinforcement again placed in the hole for concrete placement.

**Synthetic.--**Synthetic slurries shall be used in conformance with the manufacturer's recommendations and these special provisions. The following synthetic slurries may be used:

| PRODUCT | MANUFACTURER |
|---|---|
| SlurryPro CDP | KB Technologies Ltd.<br>Suite 216<br>735 Broad Street<br>Chattanooga, TN 37402<br>(800) 525-5237 |
| Super Mud | PDS Company<br>8140 East Rosecrans Ave.<br>Paramount, CA 90723<br>(310) 634-8180 |

Inclusion of a synthetic slurry on the above list may be obtained by meeting the Department's requirements for synthetic slurries. The requirements can be obtained from the Office of Structure Design, P.O. Box 942874, Sacramento, CA 94274-0001.

Synthetic slurries listed may not be appropriate for a given site.

Synthetic slurries shall not be used in holes drilled in primarily soft or very soft cohesive soils as determined by the Engineer.

A manufacturer's representative, as approved by the Engineer, shall provide technical assistance for the use of their product, shall be at the site prior to introduction of the synthetic slurry into a drilled hole, and shall remain at the site until released by the Engineer.

Synthetic slurries shall be sampled and tested at both mid-height and near the bottom of the drilled hole. Samples shall be taken and tested during drilling as necessary to verify the control of the properties of the slurry. Samples shall be taken and tested when drilling is complete, but prior to final cleaning of the bottom of the hole. When samples are in conformance with the requirements shown in the following tables for each slurry product, the bottom of the hole shall be cleaned and any loose or settled material removed. Samples shall be obtained and tested after final cleaning and just prior to placing concrete.

SlurryPro CDP synthetic slurries shall be tested for conformance to the requirements shown in the following table:

| SLURRYPRO CDP<br>KB Technologies Ltd. | | |
|---|---|---|
| PROPERTY | REQUIREMENT | TEST |
| Density (pcf)<br><br>- during drilling<br><br><br>- prior to final cleaning<br>- just prior to placing concrete | <br><br>less than or equal to 67.0*<br><br><br>less than or equal to 64.0* | <br>Mud Weight (Density)<br>API 13B-1<br>Section 1 |
| Viscosity (seconds/quart)<br><br>- during drilling<br><br><br>-prior to final cleaning<br>- just prior to placing concrete | <br><br>50 to 120<br><br><br>less than or equal to 70 | <br><br>Marsh Funnel and Cup<br>API 13B-1<br>Section 2.2 |
| pH | 6 to 11.5 | Glass Electrode pH Meter or pH Paper |
| Sand Content (percent)<br><br>- prior to final cleaning<br>- just prior to placing concrete | <br><br><br>less than or equal to 0.5 | <br>Sand<br>API 13B-1<br>Section 5 |
| *When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf.<br>Slurry temperature shall be at least 40 degrees Fahrenheit (4 degrees Celsius) when tested. | | |

Super Mud synthetic slurries shall be tested for conformance to the requirements shown in the following table:

| SUPER MUD<br>PDS Company | | |
|---|---|---|
| PROPERTY | REQUIREMENT | TEST |
| Density (pcf)<br><br>- prior to final cleaning<br>- just prior to placing concrete | <br><br>less than or equal to 64.0* | <br>Mud Weight (Density)<br>API 13B-1<br>Section 1 |
| Viscosity (seconds/quart)<br><br>- during drilling<br><br><br>- prior to final cleaning<br>- just prior to placing concrete | <br><br>32 to 60<br><br><br>less than or equal to 60 | <br><br>Marsh Funnel and Cup<br>API 13B-1<br>Section 2.2 |
| pH | 8 to 10.0 | Glass Electrode pH Meter or pH Paper |
| Sand Content (percent)<br><br>- prior to final cleaning<br>-just prior to placing concrete | <br><br>less than or equal to 0.5 | <br>Sand<br>API 13B-1<br>Section 5 |
| *When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf.<br>Slurry temperature shall be at least 40 degrees Fahrenheit (4 degrees Celsius) when tested. | | |

**Water.**--At the option of the Contractor water may be used as slurry when casing is used for the entire length of the drilled hole.

Water slurry shall be tested for conformance to the requirements shown in the following table:

| WATER SLURRY | | |
|---|---|---|
| PROPERTY | REQUIREMENT | TEST |
| Density<br>(pcf)<br><br>- prior to final cleaning<br>- just prior to placing concrete | <br><br>63.5 * | <br>Mud Weight (Density)<br>API 13B-1<br>Section 1 |
| Sand Content<br>(percent)<br><br>- prior to final cleaning<br>-just prior to placing concrete | <br><br>less than or equal to 0.5 | <br>Sand<br>API 13B-1<br>Section 5 |
| *When approved by the Engineer, salt water slurry may be used, and the allowable densities may be increased up to 2 pcf.. | | |

**MEASUREMENT AND PAYMENT.**--Measurement and payment for the various types and classes of piles shall conform to the provisions in Sections 49-6.01, "Measurement," and 49-6.02, "Payment," of the Standard Specifications and these special provisions.

The eighth paragraph in Section 49-6.02, "Payment," of the Standard Specifications is amended to include:

Load test piles and adjacent anchor piles that become a part of the completed structure, or are shown on the plans, or are specified, will be paid for at the contract prices for the type or class of piling shown in the Engineer's Estimate.

Full compensation for furnishing and placing additional testing reinforcement, load test anchorages, and for cutting off test piles as specified shall be considered as included in the contract price paid for piling of the type or class shown in the Engineer's Estimate, and no additional compensation will be allowed.

No extension of time will be made for additional foundation investigation, installation and testing of indicator piling, cutting off piling and restoring the foundation investigation and indicator pile sites, and review of request by the Engineer.

Cast-in-place concrete piling will be paid for as provided in Section 49-6.02, "Payment," of the Standard Specifications except that, when the diameter of cast-in-place concrete piling is shown on the plans as 24-inch or larger, reinforcement in such piling will be paid for as bar reinforcing steel (bridge).

Full compensation for any changes in the cost of constructing cast-in-drilled-hole concrete piling with increased diameters as provided in these special provisions, including the increased quantity of portland cement concrete and any changes in the drilling cost, shall be considered as included in the contract price paid per linear foot for the size of cast-in-drilled-hole concrete piling shown on the plans and no separate payment will be made therefor.

Full compensation for slurry, depositing concrete under slurry, test batches, inspection pipes, filling inspection holes and pipes with grout, drilling oversize cast-in-drilled-hole concrete piling, filling cave-ins and oversize piles with concrete, and redrilling through concrete shall be considered as included in the contract prices paid per linear foot for cast-in-drilled-hole concrete piling of the sizes listed in the Engineer's Estimate and no additional compensation will be allowed therefor.

**10-1.34 CONCRETE STRUCTURES**

Portland cement concrete structures shall conform to the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these special provisions.

Shotcrete shall not be used as a alternative construction method for reinforced concrete members unless otherwise specified.

The first sentence of the tenth paragraph in Section 51-1.05, “Forms,” of the Standard Specifications is amended to read:

Form panels for exposed surfaces shall be plywood conforming to or exceeding the requirements of U.S. Product Standard PS 1 for Exterior B-B (Concrete Form) Class I Plywood or any material which will produce a smooth uniform concrete surface substantially equal to that which would result from the use of such plywood.

The second paragraph in Section 51-1.22, "Measurement," of the Standards Specifications is amended to read:

The estimated quantity of concrete for minor structures designated as final pay in the Engineer's Estimate will not be revised as specified in Section 9-1.015, "Final Pay Items," of the Standard Specifications, when the constructed height of said minor structure, including revisions by the Engineer, is within 0.5-foot of the vertical dimension shown on the plans.

When a roughened concrete surface is shown on the plans, the existing concrete surface shall be roughened to a full amplitude of approximately 1/4-inch by abrasive blasting, water blasting or mechanical equipment.

**CONCRETE**.--Concrete for diaphragm bolsters shall conform to the provisions of Section 90-10, “Minor Concrete,” of the Standard Specifications except as provided under “Aggregate Gradings,” of these special provisions.

Drain extension pipe for concrete column jackets and footings shall conform to the provisions for drainage piping in Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications.

The space to be occupied by the concrete column jacket materials shall be cleared of plants and other materials prior to encasing the column.

Removed plants and other materials shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

The same information that is on existing columns shall be painted on new concrete column jackets in accordance with the provisions in Section 51-1.21, "Bridge Name, Number and Bent Numbers," of the Standard Specifications.

Placing holes in bridge decks to facilitate concrete placement will not be allowed.

**FALSEWORK.**--Falsework shall be designed and constructed in conformance with the requirements in Section 51-1.06, "Falsework," of the Standard Specifications and these special provisions.

Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications is amended by adding the following after the first paragraph:

The falsework drawings shall include details of the falsework removal operations showing the methods and sequences of removal and equipment to be used.

The seventeenth paragraph of Section 51-1.06A is amended to read:

Temporary bracing shall be provided, as necessary, to withstand all imposed loads during erection, construction and removal of any falsework. The falsework drawings shall show provisions for such temporary bracing or methods to be used to conform to this requirement during each phase of erection and removal. Wind loads shall be included in the design of such bracing or methods.

The fifth paragraph of Section 51-1.06A(1), "Design Loads," of the Standard Specifications is amended to read:

The minimum horizontal load to be allowed for wind on heavy-duty steel shoring or steel pipe column falsework having a vertical load carrying capacity exceeding 30 kips per leg or column shall be the sum of the products of the wind impact area, shape factor, and the applicable wind pressure value for each height zone. The wind impact area is the total projected area of all the elements in the tower face or falsework bent normal to the direction of the applied wind. The shape factor shall be taken as 2.2 for heavy-duty shoring and 1.0 for pipe column falsework. Wind pressure values shall be determined from the following table:

| | Wind Pressure Value | |
|---|---|---|
| Height Zone (Feet above ground) | Shores or Columns Adjacent to Traffic | At Other Locations |
| 0 to 30 | 20 psf | 15 psf |
| 30 to 50 | 25 psf | 20 psf |
| 50 to 100 | 30 psf | 25 psf |
| Over 100 | 35 psf | 30 psf |

The first 2 sentences of the sixth paragraph of Section 51-1.06A(1), "Design Loads," of the Standard Specifications are amended to read:

The minimum horizontal load to be allowed for wind on all other types of falsework, including falsework supported on heavy-duty shoring or pipe column falsework, shall be the sum of the products of the wind impact area and the applicable wind pressure value for each height zone. The wind impact area is the gross projected area of the falsework and any unrestrained portion of the permanent structure, excluding the areas between falsework bents or towers where diagonal bracing is not used.

The second entry under "Timber" in the second paragraph of Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the Standard Specifications is amended to read:

Compression parallel to the grain .... $\frac{480{,}000}{(L/d)^2}$ psi, but not to exceed 1,600 psi.

The last paragraph under "Timber" in the second paragraph of Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the Standard Specifications is amended to read:

Timber connections shall be designed in accordance with the procedures, stresses and loads permitted in the Falsework Manual as published by the Department of Transportation, Division of Structures, Office of Structure Construction.

The third paragraph of Section 51-1.06B “Falsework Construction” of the Standard Specifications is amended to read:

When falsework is supported on piles, the piles shall be driven and the actual bearing value assessed in conformance with Section 49, “Piling,” as specified in these specifications.

For falsework piles with a calculated loading capacity greater than 100 tons, the contractor shall conduct dynamic monitoring of pile driving and conduct penetration and bearing analyses based on a wave equation analysis. Said analysis shall be signed by an Engineer who is licensed as a Civil Engineer in California and submitted to the Engineer prior to completion of falsework erection.

The first paragraph of Section 51-1.06C, "Removing Falsework," of the Standard Specifications is amended to read:

Falsework supporting any span of a simple span bridge shall not be released before 10 days after the last concrete, excluding concrete above the bridge deck, has been placed. Unless otherwise permitted by the Engineer, falsework supporting any span of a continuous or rigid frame bridge shall not be released before 10 days after the last concrete, excluding concrete above the bridge deck, has been placed in that span and in the adjacent portions of each adjoining span for a length equal to at least 1/2 the length of the span where falsework is to be released.

Section 51-1.06C, "Removing Falsework," of the Standard Specifications is amended by adding the following after the seventh paragraph:

Unless otherwise specified, removing falsework supporting any span of structural members subject to bending, shall conform to the requirements for removing falsework supporting any span of a simple span bridge.

Temporary crash cushion modules, as shown on the plans and conforming to the provisions in "Temporary Crash Cushion Module," elsewhere in these special provisions, shall be installed at the approach end of temporary railings less than 15 feet from the edge of a traffic lane. For two-way traffic openings, temporary crash cushion modules shall be installed at the departing end of temporary railings less than 6 feet from edge of a traffic lane.

**AGGREGATE GRADINGS.--**The aggregate grading of concrete for diaphragm bolsters shall conform to the following requirements for the 1/2 inch maximum combined aggregate grading and the 1/2" x No. 4 primary aggregate nominal size:

The following gradation is added to the table in the third paragraph in Section 90-3.01, "General", of the Standard Specifications:

| Nominal Size Primary Aggregate | Sieve Size | Limits of Proposed Gradation |
|---|---|---|
| 1/2" x No. 4 | 3/8" | 50 - 85 |

The following table is added to the first paragraph in Section 90-3.02, "Coarse Aggregate Grading," of the Standard Specifications:

| | Percentage Passing Primary Aggregate Nominal Size 1/2" x No. 4 | |
|---|---|---|
| Sieve Sizes | Operating Range | Contract Compliance |
| 3/4" | 100 | 100 |
| 1/2" | 90 - 100 | 88 - 100 |
| 3/8" | X ± 15 | X ± 22 |
| No. 4 | 0 - 15 | 0 - 18 |
| No. 8 | 0 - 6 | 0 - 7 |

Section 90-3.04, "Combined Aggregate Gradings," of the Standard Specifications is amended by adding the grading limits of combined aggregates for the 1/2" x No. 4 primary aggregate size as follows:

| Sieve Sizes | Percentage Passing 1/2" Max. |
|---|---|
| 3/4" | 100 |
| 1/2" | 90 - 100 |
| 3/8" | 50 - 100 |
| No. 4 | 45 - 60 |
| No. 8 | 35 - 55 |
| No. 16 | 25 - 40 |
| No. 30 | 15 - 25 |
| No. 50 | 5 - 15 |
| No. 100 | 1 - 8 |
| No. 200 | 0 - 4 |

**MEASUREMENT AND PAYMENT.**--Measurement and payment for concrete in structures shall conform to the provisions in Sections 51-1.22, "Measurement," and 51-1.23, "Payment," of the Standard Specifications and these special provisions.

Full compensation for roughening existing concrete surfaces to a full amplitude of approximately 1/4-inch, where shown on the plans, shall be considered as included in the contract price paid per cubic yard for structural concrete, bridge and no separate payment will be made therefor.

Full compensation for furnishing and installing drain pipe extensions through concrete column jackets and footings shall be considered as included in the contract price paid per cubic yard for structural concrete, bridge and no separate payment will be made therefor.

Full compensation for removing wire mesh shall be considered as included in the contract price paid per cubic yard for structural concrete, bridge and no additional compensation will be allowed therefor.

**10-1.35 SOUND WALL**

**DESCRIPTION**.--This work shall consist of constructing sound walls of masonry block. Sound walls shall be supported on concrete barriers footings, piles, and pile caps as shown on the plans.

The Contractor shall submit 2 sets of elevation and plan layout drawings to the Engineer, as provided in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. The drawings shall be to scale and shall show the proposed top and bottom elevation lines. The top and bottom elevation lines shown on the plans are minimum and they shall be fully contained in the proposed layout drawings. The drawings shall include, within the limits shown on the plans, the panel sizes, pile spacing, post spacing, footing steps, aesthetic features, locations of expansion joints and access gates. The Contractor shall allow two weeks after complete drawings are submitted for review.

**SOUND WALL (MASONRY BLOCK).--**Sound wall (masonry block), consisting of a reinforced hollow unit masonry block stem, shall conform to the provisions in Sections 19, "Earthwork," 52, "Reinforcement," and 90, "Portland Cement Concrete," of the Standard Specifications and these special provisions.

Sound wall masonry unit stems shall be constructed with joints of portland cement mortar. Wall stems shall be constructed with hand laid block. Wall stems shall not be constructed with preassembled panels.

All loose material existing at the bottom of the hole after drilling operations have been completed shall be removed to the depth of pile shown on the plans before placing concrete in the hole.

Concrete for sound wall footings, pile caps and grade beams, if needed, shall conform to the provisions in Section 90-10, "Minor Concrete," of the Standard Specifications.

Reinforcing bars shall conform to ASTM Designation: A 706.

Concrete masonry units shall be hollow, load bearing, conforming to ASTM Designation: C 90, lightweight or medium weight classification, Type II. Standard or open end units may be used. Open end units, if used, shall not reduce the spacing of the bar reinforcement as shown on the plans.

The masonry units shall be nominal size and texture and of uniform color. The color shall be natural gray selected from the manufacturer's standards.

When high strength concrete masonry units with f'm=2500 pounds per square inch are shown on the plans, the high strength masonry units shall have a minimum compressive strength of 3750 pounds per square inch based on net area. Each high strength concrete masonry unit shall be identified with a groove embedded in an interior corner. The groove shall extend from a mortar surface for a length of about 2 inches and shall have a depth of about 3/16 inch.

Expansion joint filler shall conform to ASTM Designation: D 1751 or ASTM Designation: D 2000 2AA-805.

Portland cement mortar shall be colored to match the units. Coloring shall be chemically inert, fade resistant mineral oxide or synthetic type.

Portland cement for wall stems shall conform to Section 90-2.01, "Portland Cement," of the Standard Specifications.

Hydrated lime shall conform to ASTM Designation: C 207, Type S.

Mortar sand shall be commercial quality.

Mortar for laying masonry units shall consist, by volume, of one part portland cement, 0 to 1/2 parts of hydrated lime, and 2 1/4 to 3 parts of mortar sand. Sufficient water shall be added to make a workable mortar. Each batch of mortar shall be accurately measured and thoroughly mixed. Mortar shall be freshly mixed as required. Mortar shall not be retempered more than one hour after mixing.

Prepackaged mortar materials and mortar containing admixtures may be used when approved in writing by the Engineer, provided the mortar shall not contain more than 0.05 percent soluble chlorides in accordance with California Test 422 or 0.25 percent soluble sulfates, as $SO_4$, in accordance with California Test 417.

Prior to laying masonry units using prepackaged mortar materials or mortar containing admixtures, the Contractor shall submit to the Engineer his proposed sources of the materials together with test data from an independent testing laboratory for mortar tested in accordance with California Test 551. The test data shall be from specimens having a moist cure, except, the sample will not be immersed in lime water. The average 28-day compressive strength of the mortar shall be not less than 2,500 psi.

Aggregate for grout used to fill masonry units shall consist of fine aggregate and coarse aggregate conforming to the provisions in Section 90-2.02, "Aggregates," of the Standard Specifications. At least 20 percent of the aggregate shall be coarse aggregate. The Contractor shall determine the grading except that 100 percent of the combined grading shall pass the 1/2 inch sieve.

At the option of the Contractor, grout for filling masonry units may be proportioned either by volume or weight. Grout shall contain only enough water to cause it to flow and fill the voids without segregation. The maximum amount of free water shall not exceed 0.7 times the weight of the cement for regular strength masonry. The maximum amount of free water shall not exceed 0.6 times the weight of the cement for high strength masonry.

Grout proportioned by volume for regular strength masonry shall consist of at least one part portland cement and 4.5 parts aggregate. Grout proportioned by volume for high strength masonry shall consist of at least one part portland cement and 3.5 parts aggregate. Aggregate volumes shall be based on a loose, air-dry condition.

Grout proportioned by weight for regular strength masonry shall contain at least 564 pounds of portland cement per cubic yard. Grout proportioned by weight for high strength masonry shall contain at least 658 pounds of portland cement per cubic yard.

Construction of reinforced concrete masonry unit wall stems with portland cement mortar joints shall conform to the following:

Concrete masonry unit construction shall be true and plumb in the lateral direction and shall conform to the grade shown on the plans in the longitudinal direction. Bond beam units or recesses for horizontal reinforcement shall be provided.

Cells to be filled with grout shall be provided with cleanout openings at the bottoms of each grout lift that exceeds 5 feet in height. After cell inspection, the cleanouts shall be sealed before filling with grout.

Mortar joints shall be approximately 3/8 inch wide. Walls and cross webs forming cells to be filled with grout shall be full bedded in mortar to prevent leakage of grout. All head and bed joints shall be solidly filled with mortar for a distance in from the face of the wall or unit not less than the thickness of the longitudinal face shells. Head joints shall be shoved tight.

Mortared joints around cells to be filled shall be placed so as to preserve the unobstructed vertical continuity of the grout filling. Any overhanging mortar or other obstruction or debris shall be removed from the inside of such cells.

Reinforcement shall be securely held in position at top and bottom with either wire ties or spacing devices and at intervals not exceeding 192 bar diameters. Wire shall be 16-gage or heavier. Wooden, aluminum, or plastic spacing devices shall not be used.

Splices in vertical reinforcement will be allowed only where shown on the plans.

Only those cells containing reinforcement shall be filled solidly with grout. All grout in the cells shall be consolidated at the time of placement by vibrating and re-consolidated after excess moisture has been absorbed but before plasticity is lost. Slicing with a trowel is not acceptable.

If the total height of grout to be placed exceeds 6 feet the grout shall be placed in 4-foot maximum height lifts. The grout placement shall proceed in lifts until the full height of the section is placed. A minimum waiting period between placing of lifts shall be limited to the time required to obtain initial consolidation of grout, but shall be not less than 30 minutes.

A construction joint is required at the top of the top course to permit placement of the mortar cap. The mix design for the mortar cap shall be as approved by the Engineer.

Construction joints shall be made in grout when the placing of grout in grout filled cells is stopped for more than one hour. The construction joint shall be 1/2 inch below the top of the last course filled with grout.

Bond beams shall be continuous. The top of unfilled cells under horizontal bond beams shall be covered with metal or plastic lath.

When fresh masonry joins masonry that is partially or totally set, the contact surface shall be cleaned, roughened and lightly wetted.

Surface of the concrete on which the masonry walls are to be placed shall be roughened and cleaned, exposing the stone aggregate, and shall be flushed with water and allowed to dry to a surface dry condition immediately prior to laying the masonry units.

Where masonry unit cutting is necessary, all cuts shall be made with a masonry saw to neat and true lines. Masonry units with excessive cracking or chipping of the finished exposed surfaces will not be acceptable.

Masonry shall be protected as provided for concrete structures in Section 90-8, "Protecting Concrete," of the Standard Specifications and these special provisions.

During erection, all cells shall be kept dry in inclement weather by covering partially completed walls. The covering shall be waterproof fabric, plastic or paper sheeting, or other approved material. Wooden boards and planks are not acceptable as covering materials. The covering shall extend down each side of masonry walls approximately 2 feet.

Splashes, stains or spots on the exposed faces of the wall shall be removed.

**ACCESS GATES**.--Access gates shall conform to the details shown on the plans and these special provisions.

Timber members shall be tongue and groove Douglas fir sub-flooring free of knotholes. The location of knots of adjoining boards shall be staggered. The construction of the gate shall be with the tongue placed in the up position. The tongue of the top board and the groove of the bottom board shall be removed.

Timber members, steel frames, channels, anchorage devices, mounting hardware, gate rollers, corrugated steel pipe, nylon washers and neoprene tubing shall be of commercial quality.

The one-inch round ladder rungs with non-skid surface shall consist of No. 8 deformed, diamond pattern, bar reinforcing steel of commercial quality.

Gate rollers shall be rigid casters with self-lubricating bearings and hard rubber wheels.

All metal parts and hardware shall be galvanized.

Timber surfaces of the access gates shall be primed and then stained with 2 coats of stain to match the adjacent sound wall. Primer and stain shall be of the top of the line primer and stain from an established manufacturer. An established manufacturer is one who has manufactured industrial paints and stains to meet custom specifications for at least 10 years.

Where the back side of the masonry wall is to be split faced, or rough surface blocks, the bond beam above the gate opening upon which the upper gate guide is to be mounted shall have smooth sided blocks.

Material from excavation may be used for backfill outside of the pipe landings. Aggregate filling inside the pipe landings shall be a coarse concrete aggregate of commercial quality. Compacting of the aggregate will not be required.

**MEASUREMENT AND PAYMENT.--**Sound walls and sound walls (barrier), of the types designated in the Engineer's Estimate, will be measured by the square foot of wall projected on a vertical plane between the elevation lines shown on the plans or for walls supported on barriers from the top of the barrier to the upper elevation line and length of wall (including the access gates).

The contract prices paid per square foot for sound wall and sound wall (barrier) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the sound wall complete in place, including all supports (except barriers and barrier supports), anchorages, access gates, excavation, backfill, and reinforcement, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer. Concrete barrier and barrier supports supporting sound walls (barrier) will be measured and paid for as separate items of work.

Attention is directed to the section for concrete barrier elsewhere in these special provisions.

### 10-1.36 DRILL AND BOND DOWEL (EPOXY CARTRIDGE)

Drilling and bonding dowels with epoxy cartridges shall conform to the details shown on the plans and the requirements in these special provisions.

Reinforcing steel dowels shall conform to the provisions in "Reinforcement" of these special provisions.

Threaded rods used as dowels shall conform to the provisions in Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications, except that galvanizing will not be required. The threaded rods shall be installed in accordance with these requirements for dowels specified herein.

The Contractor shall select an epoxy cartridge system which has passed the testing requirements of the International Conference of Building Officials (ICBO) document - AC58 and additional test requirements as specified in the Caltrans Augmentation/Revisions to ICBO AC58. Testing shall be performed by an independent testing facility and the results

will be reviewed and approved by the Transportation Laboratory. The Caltrans Augmentation/Revisions to ICBO AC58 document may be obtained by contacting the Transportation Laboratory, telephone: (916) 227-7000.

The epoxy cartridge system used shall be appropriate for the ambient concrete temperature and installation conditions at the time of installation in accordance with the manufacturer's specifications.

Epoxy cartridges shall be accompanied by a Certificate of Compliance as provided in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The certificate shall state that the material complies in all respects to the specifications and data submitted in obtaining approval.

Each epoxy cartridge shall be clearly and permanently marked with the manufacturer's name, model number of the epoxy cartridge system, manufacturing date, and lot number. Each carton of epoxy cartridges shall contain the manufacturer's recommended installation procedures, minimum cure time, and such warning or precautions concerning the contents as may be required by State or Federal Laws and Regulations.

The holes shall be drilled by methods that will not shatter or damage the concrete adjacent to the holes. If reinforcement is encountered during drilling, before specified depth is attained, the Engineer shall be notified. Unless the Engineer approves, in writing, coring through the reinforcement, the hole will be rejected and a new hole, in which reinforcement is not encountered, shall be drilled adjacent to the rejected hole to the depth recommended by the manufacturer.

The drilled holes shall be cleaned in accordance with the manufacturer's instructions and shall be dry at the time of placing the epoxy cartridge bonding material and the steel dowels. The bonding material shall be a two-component epoxy system contained in a cartridge having two separate chambers and shall be inserted into the hole using a dispensing gun and replaceable mixing nozzle approved by the manufacturer. Unless otherwise specified, the depth of hole and the installation procedure shall be as recommended by the manufacturer. A copy of the manufacturer's recommended installation procedure shall be provided to the Engineer 2 days prior to the start of work.

Immediately after inserting the dowels into the epoxy, the dowels shall be supported as necessary to prevent movement during curing and shall remain undisturbed until the epoxy has cured a minimum time as specified by the manufacturer. Dowels that are improperly bonded, as determined by the Engineer, will be rejected. Adjacent new holes shall be drilled, and new dowels shall be placed and securely bonded to the concrete. All work necessary to correct improperly bonded dowels shall be performed at the Contractor's expense.

Unless otherwise provided, dowels to be bonded into drilled holes will be measured and paid for as bar reinforcing steel (bridge).

Unless otherwise provided, drilling and bonding dowels with epoxy cartridges will be measured and paid for by the unit as drill and bond dowel (epoxy cartridge). The number of units to be paid for will be determined from actual count of the completed units in place.

The contract unit price paid for drill and bond dowel (epoxy cartridge) shall include full compensation for furnishing all labor, materials (except dowels), tools, equipment and incidentals, and for doing all work involved in drilling the holes and bonding dowels with epoxy cartridges, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### 10-1.37 DRILL AND BOND DOWELS

Drilling and bonding dowels shall conform to the details shown on the plans, the provisions in Section 83-2.02D(1), "General," of the Standard Specifications and these special provisions.

Dowels shall conform to the provisions for bar reinforcement in "Reinforcement" elsewhere in these special provisions.

If reinforcement is encountered during drilling, before specified depth is attained, the Engineer shall be notified. Unless the Engineer approves coring through the reinforcement, the hole will be rejected and a new hole, in which reinforcement is not encountered, shall be drilled adjacent to the rejected hole to the depth shown on the plans.

Unless otherwise provided, dowels to be bonded into drilled holes will be paid for as bar reinforcing steel (bridge).

Unless otherwise provided, drilling and bonding dowels will be measured and paid for by the linear foot determined by the number and the required depth of holes as shown on the plans, or as ordered by the Engineer.

The contract price paid per linear foot for drill and bond dowel shall include full compensation for furnishing all labor, materials (except reinforcing steel dowels), tools, equipment, and incidentals, and for doing all the work involved in drilling the holes, including coring through reinforcement when approved by the Engineer, and bonding the dowels, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### 10-1.38 CORE CONCRETE

Coring concrete shall consist of coring holes through reinforced concrete bridge members as shown on the plans and in conformance with the requirements in these special provisions.

For cored holes greater than 10 feet in length, the following shall apply:

Prior to coring, the Contractor shall submit, in accordance with Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, the methods and equipment to be used in the coring operations.

The deviation in alignment of cored holes from that shown on the plans shall not be more than 1/2 inch per 10 feet of cored hole length with a maximum deviation of not more than 3 inches.

Immediately after coring, the concrete cores shall be identified by the Contractor with a description of the core locations and submitted to the Engineer for inspection. When reinforcement is cut, coring operations shall be terminated, and the Contractor shall submit to the Engineer for approval, the procedure proposed to repair the cut reinforcement and to prevent further cutting of reinforcement.

The holes shall be cored by methods that will not shatter or damage the concrete adjacent to the holes.

Water for core drilling operations shall be from the local domestic water supply or shall not contain more than 1,000 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as $SO_4$, nor shall it contain any impurities in a sufficient amount to cause discoloration of the concrete or produce etching of the surface.

Water from core drilling operations shall not be permitted to fall on public traffic, to flow across shoulders or lanes occupied by public traffic, or to flow into gutters or other drainage facilities.

Coring concrete will be measured and paid for by the linear foot as core concrete of the sizes listed in the Engineer's Estimate. The cored concrete will be measured along the centerline of the hole without deduction for expansion joints.

The contract price paid per linear foot for core concrete of the sizes listed in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in coring the holes, including control of water from core drilling, and repairing any damaged reinforcement as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

**10-1.39 CORE AND PRESSURE GROUT DOWELS**

Coring and pressure grouting dowels shall consist of coring holes through concrete, placing dowels, and filling the holes with pressurized grout, as shown on the plans and in conformance with the requirements in these special provisions.

Reinforcement dowels to be placed in the cored holes shall conform to the provisions for bar reinforcement in "Reinforcement" elsewhere in these special provisions.

Reinforcement dowels to be pressure grouted in cored holes will be paid for as bar reinforcing steel (bridge).

High strength rods to be placed in the cored holes shall conform to the provisions for high strength threaded rods in "Miscellaneous Metal (High Strength Rod)" elsewhere in these special provisions.

High strength rods to be pressure grouted in cored holes will be paid for as miscellaneous metal (high strength rod).

The holes shall be cored by methods that will not shatter or damage the concrete adjacent to the holes.

Water for core drilling operations shall be from the local domestic water supply or shall not contain more than 1,000 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as $SO_4$, nor shall it contain any impurities in a sufficient amount to cause discoloration of the concrete or produce etching of the surface.

Concrete areas and steel surfaces to be in contact with the grout shall be cleaned of all loose or foreign material that would in any way prevent bonding, and concrete holes shall be flushed with water and allowed to dry to a surface dry condition immediately prior to grouting.

Grout shall conform to the requirements of either ASTM Designation: C 1107, Grade B, or ASTM Designation: C 845, Type K, and shall provide a minimum compressive strength of 5000 pounds per square inch at 28 days when tested by California Test 551. The grout shall be mixed in accordance with the manufacturer’s recommendations. Water shall comply with the provisions for water for prestressed concrete work as specified in Section 90-2.03, "Water," of the Standard Specifications.

Admixtures shall not contain more than 500 parts per million of chlorides as Cl, when tested by California Test 422, and shall not contain more than 2500 parts per million of sulfates as $SO_4$, when tested by California Test 417.

After dowel placement, the ends of the cored hole containing the dowel shall be sealed. A vent tube shall be placed at one end and one injection feed tube at the other end. The vent tube and injection feed tube shall be placed in the same end for cored holes that have only one end. The tubes shall be placed in the hole in a manner which will allow the air to vent and the hole to be completely filled with grout. Sufficient pressure shall be achieved to ensure that the hole is free of voids. Grout shall be pumped into the holes and continually wasted until no visible slugs or other visible evidence of water or air are ejected.

Grout or water shall not be permitted to flow into any waterway, on to public traffic, across shoulders or lanes occupied by public traffic, or into gutters or other drainage facilities.

Coring and pressure grouting dowels will be measured and paid for by the linear foot. The cored concrete will be measured along the centerline of the hole.

The contract price paid per linear foot for core and pressure grout dowels shall include full compensation for furnishing all labor, materials, except dowels, tools, equipment, and incidentals, and for doing all work involved in coring

the holes, and pressure grouting the holes, including control of water from core drilling, as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

Full compensation for any excavation and backfill required for coring operations beyond the limits shown on the plans shall be considered as included in the contract price paid per linear foot for core and pressure grout dowels and no separate payment will be made therefor.

**10-1.40 REINFORCEMENT**

Reinforcement shall conform to the provisions in Section 52, "Reinforcement," of the Standard Specifications and these special provisions.

Attention is directed to "Welding Quality Control" elsewhere in these special provisions.

The first paragraph of Section 52-1.02A, "Bar Reinforcement," of the Standard Specifications is amended as follows:

Reinforcing bars shall be low-alloy steel deformed bars conforming to the specifications of ASTM Designation: A 706/A 706M, except that deformed or plain billet-steel bars conforming to ASTM Designation: A 615/A 615M, Grade 40 or 60, may be used as reinforcement in the following:

1. Slope and channel paving;
2. Minor structures;
3. Sign and signal foundations (pile and spread footing types);
4. Roadside rest facilities; and
5. Concrete barrier Type 50 and Type 60 series and temporary railing.

Deformations specified in ASTM Designation: A 706/A 706M will not be required on bars used as spiral or hoop reinforcement in structures and concrete piles.

Section 52-1.02D, "Reinforcing Wires and Plain Bars," of the Standard Specifications is amended to read:

**52-1.02D Reinforcing Wire.—**Wire used as reinforcement in structures and concrete piles, as shown on the plans, shall be cold drawn steel wire conforming to the specifications of ASTM Designation: A 82.

The last paragraph of Section 52-1.07, "Placing," of the Standard Specifications is amended to read:

Whenever a portion of an assemblage of bar reinforcing steel that is not encased in concrete exceeds 20 feet in height, the Contractor shall submit to the Engineer for approval, in accordance with the provisions in Section 5-1.02, "Plans and Working Drawings," working drawings and design calculations for the temporary support system to be used. The working drawings and design calculations shall be signed by an engineer who is registered as a Civil Engineer in the State of California. The temporary support system shall be designed to resist all expected loads and shall be adequate to prevent collapse or overturning of the assemblage. If the installation of forms or other work requires revisions to or temporary release of any portion of the temporary support system, the working drawings shall show the support system to be used during each phase of construction. The minimum horizontal wind load to be applied to the bar reinforcing steel assemblage, or to a combined assemblage of reinforcing steel and forms, shall be not less than 20 pounds per square foot on the gross projected area of the assemblage.

The sixth paragraph of Section 52-1.08, “Splicing,” of the Standard Specifications is amended to read:

Except when otherwise specified, mechanical lap splicing shall conform to the details shown on the plans, the requirements for mechanical butt splices as specified in this Section 52-1.08, and Sections 52-1.08C, “Mechanical Butt Splices,” 52-1.08D, “Qualification of Welding and Mechanical Splicing,” and 52-1.08E, “Job Control Tests,” and the following:

The mechanical lap splice shall be a unit consisting of a sleeve, in which the reinforcing bars are positioned, and a wedge driven through holes in the sleeve and between the reinforcing bars. The mechanical lap splice shall only be used for splicing non-epoxy-coated deformed reinforcing bars Nos. 4, 5 and 6. One mechanical lap splice unit per splice shall be used.

The eighth and ninth paragraphs of Section 52-1.08, "Splicing," of the Standard Specifications are amended to read:

Unless otherwise shown on the plans or approved by the Engineer, splices in adjacent reinforcing bars at any particular section shall be staggered. The minimum distance between staggered lap splices or mechanical lap splices

shall be the same length required for a lapped splice in the largest bar. The minimum distance between staggered butt splices shall be 2 feet. All distances shall be measured between the midpoints of the splices along a line which is centered between the axes of the adjacent bars.

Completed butt splices shall develop a minimum tensile strength, based on the nominal bar area, of 63,000 psi for ASTM Designation: A 615/A 615M Grade 40 bars, and of 80,000 psi for ASTM Designation: A 615/A 615M Grade 60 and ASTM Designation: A 706/A 706M bars. If butt splices are made between two bars of dissimilar strengths, the minimum required tensile strength for the splice shall be that required for the weaker bar.

The second sentence of the eleventh paragraph of Section 52-1.08, "Splicing," of the Standard Specifications is amended to read:

Job control tests shall be made on sample splices representing each lot of mechanical butt splices as provided in Section 52-1.08E, "Job Control Tests."

Section 52-1.08B, "Butt Welded Splices," of the Standard Specifications is replaced with the following:

**52-1.08B Butt Welded Splices.—** All butt welded splices in reinforcing bars shall be complete joint penetration butt welds conforming to the requirements in AWS D1.4, and the requirements of these specifications and the special provisions. At the option of the Contractor, shop produced resistance butt welds that are produced by a fabricator who is approved by the Transportation Laboratory may be used.

Only the joint details and dimensions as shown in Figure 3.2, "Direct Butt Joints," of AWS D 1.4-92, shall be used for making complete joint penetration butt welds of bar reinforcement. Split pipe backing shall not be used.

Material used as backing for complete joint penetration butt welds of bar reinforcement shall be a flat plate conforming to the requirements of ASTM Designation: A 709, Grade 36. The flat plate shall be 0.25-inch thick with a width, as measured perpendicular to the axis of the bar, equal to the nominal diameter of the bar, and a length which does not exceed twice the nominal diameter of the bar. The flat plate backing shall be fitted tightly to the bar with the root of the weld centered on the plate. Any bar deformation or obstruction preventing a tight fit shall be ground smooth and flush with the adjacent surface. Tack welds used to fit backing plates shall be within the weld root area so that they are completely consumed by the finished weld. Backing plates shall not be removed.

Butt welds shall be made with multiple weld passes using a stringer bead without an appreciable weaving motion. The maximum stringer bead width shall be 2.5 times the diameter of the electrode and slagging shall be performed between each weld pass. Weld reinforcement shall not exceed 1/8-inch in convexity.

Before any electrodes or flux-electrode combinations are used, the Contractor, at the Contractor's expense, shall furnish certified copies of test reports for all the pertinent tests specified in AWS A5.1, AWS A5.5, AWS A5.18 or AWS A5.20, whichever is applicable, made on electrodes or flux-electrode combinations of the same class, brand and nearest specified size as the electrodes to be used. The tests may have been made for process qualification or quality control, and shall have been made within one year prior to manufacture of the electrodes and fluxes to be used. The report shall include the manufacturer's certification that the process and material requirements were the same for manufacturing the tested electrodes and the electrodes to be used. The forms and certificates shall be as directed by the Engineer.

Electrodes for manual shielded metal arc welding of ASTM Designation: A 615/A 615M, Grade 60 bars shall conform to the requirements of AWS A5.5 for E9018-M or E10018-M electrodes.

Electrodes for manual shielded metal arc welding of A 706/A 706M bars shall conform to the requirements of AWS A5.5 for E8016-C3 or E8018-C3 electrodes.

Solid and composite electrodes for semiautomatic gas metal-arc and flux-cored arc welding of Grade 40 reinforcing bars shall conform to the requirements of AWS A5.18 for ER70S-2, ER70S-3, ER70S-6 or ER70S-7 electrodes; or AWS A5.20 for E70T-1, E70T-5, E70T-6 or E70T-8 electrodes.

Electrodes for semiautomatic welding of ASTM Designation: A 615/A 615M, Grade 60 and ASTM Designation: A 706/A 706M bars shall produce a weld metal deposit with properties conforming to the requirements of Section 5.3.4 of AWS D1.1-96 for ER80S-Ni1, ER80S-Ni2, ER80S-Ni3, ER80S-D2, E90T1-K2 and E91T1-K2 electrodes.

Reinforcing bars shall be preheated for a distance of not less than 6 inches on each side of the joint prior to welding.

For all welding of ASTM Designation: A 615/A 615M, Grade 40 or Grade 60 bars, the requirements of Table 5.2, "Minimum Preheat and Interpass Temperatures," of AWS D1.4-92 are superseded by the following:

The minimum preheat and interpass temperatures shall be 400° F. for Grade 40 bars and 600° F. for Grade 60 bars. Immediately after completing the welding, at least 6 inches of the bar on each side of the splice shall be covered by an insulated wrapping to control the rate of cooling. The insulated wrapping shall remain in place until the bar has cooled below 200° F.

When welding different grades of reinforcing bars, the electrode shall conform to Grade 40 bar requirements and the preheat shall conform to the Grade 60 bar requirements.

In the event that any of the specified preheat, interpass and post weld cooling temperatures are not met, all weld and heat affected zone metal shall be removed and the splice rewelded.

All welding shall be protected from air currents, drafts, and precipitation to prevent loss of heat or loss of arc shielding. The method of protecting the welding area from loss of heat or loss of arc shielding shall be subject to approval by the Engineer.

Reinforcing bars shall not be direct butt spliced by thermite welding.

The first paragraph of Section 52-1.08C, "Mechanical Butt Splices," of the Standard Specifications is amended to read:

Mechanical butt splices shall be the sleeve-filler metal type, the sleeve-threaded type, the sleeve-swaged type, the sleeve-filler grout type, the sleeve-lockshear bolt type, the two-part sleeve-forged bar type, or the two-part sleeve-friction bar type, at the option of the Contractor.

The following is added after the third paragraph of Section 52-1.08C, “Mechanical Butt Splices,” of the Standard Specifications:

Slip requirements shall not apply to mechanical lap splices.

The following is added after Section 52-1.08C(3), "Sleeve-Swaged Mechanical Butt Splices," of the Standard Specifications:

**52-1.08C(4) Sleeve-Filler Grout Mechanical Butt Splices.—**The sleeve-filler grout type of mechanical butt splices shall consist of a steel splice sleeve that fits closely over the reinforcing bars with a non-shrink grout filler in the annular space between the reinforcing bars and the sleeve and between the ends of the reinforcing bars.

No vibration or movement of the reinforcing steel or sleeve at the splice shall be allowed while the splice is developing sufficient strength to support the reinforcing bars. The Contractor shall submit complete details of the bracing and clamping system to eliminate all vibration or movement at the splice during setup of the filler in accordance with the provisions in Section 5-1.02, "Plans and Working Drawings."

**52-1.08C(5) Sleeve-Lockshear Bolt Mechanical Butt Splices.—**The sleeve-lockshear bolt type of mechanical butt splices shall consist of a seamless steel sleeve, 2 serrated steel strips welded to the inside of the sleeve, center hole with centering pin, and bolts that are tightened until the bolt heads shear off and the bolt ends are embedded in the reinforcing bars.

**52-1.08C(6) Two-Part Sleeve-Forged Bar Mechanical Butt Splices.—** The two-part sleeve-forged bar type of mechanical butt splices shall consist of a shop machined two-part threaded steel sleeve that interlocks two hot-forged reinforcing bars ends. The forged bar ends may be either shop produced or field produced.

**52-1.08C(7) Two-Part Sleeve-Friction Bar Mechanical Butt Splices.—** The two-part sleeve-friction bar type of mechanical butt splices shall consist of a shop machined two-part threaded steel sleeve whose ends are friction welded, in the shop, to the reinforcing bars ends.

The third paragraph of Section 52-1.08D, "Qualification of Welding and Mechanical Splicing," of the Standard Specifications is replaced with the following:

Each operator qualification test for mechanical splices shall consist of 2 sample splices. Each mechanical splice procedure test shall consist of 2 sample splices.

For sleeve-filler, sleeve-threaded, sleeve-lockshear bolt and two-part sleeve friction bar mechanical butt splices, all sample splices shall be made on the largest reinforcing bar size to be spliced by the procedure or operator being tested except that No. 14 bars may be substituted for No. 18 bars.

For sleeve-swaged and two-part sleeve-forged mechanical butt splices, and mechanical lap splices, all sample splices shall be made on the largest reinforcing bar size of each deformation pattern to be spliced by the procedure or operator being tested. When joining new reinforcing bars to existing reinforcement, the qualification test sample bars shall be made with the deformation pattern of the new reinforcement to be joined.

Section 52-1.08E, "Job Control Tests," of the Standard Specifications is replaced with the following:

**52-1.08E Job Control Tests.—** When mechanical butt splices, shop produced complete joint penetration butt welded splices, or shop produced resistance butt welded splices are used, the Contractor shall furnish job control tests from a local qualified lab. A job control test shall consist of the fabrication, under conditions used to produce the splice, and the physical testing of 3 sample splices for each lot of splices.

A lot of mechanical butt splices is defined as 150, or fraction thereof, of the same type of mechanical butt splices used for each combination of bar size and bar deformation pattern that is used in the work.

A lot of shop produced complete joint penetration butt welded splices, or shop produced resistance butt welded splices, is defined as 150, or fraction thereof, of the same type of welds used for each combination of bar size and bar deformation pattern that is used in the work.

When joining new reinforcing bars to existing reinforcement, the job control test shall be made with the deformation pattern of the new reinforcement to be joined.

A sample splice shall consist of a splice made at the job site to connect two 30-inch, or longer, bars using the same splice materials, position, location, and equipment, and following the same procedures as are being used to make splices in the work. Shorter sample splice bars may be used if approved by the Engineer.

Sample splices shall be made and tested in the presence of the Engineer or the Engineer's authorized representative.

Sample splices shall be suitably identified with weatherproof markings prior to shipment to the testing laboratory.

For sleeve-threaded mechanical butt splices, the reinforcing bars to be used for job control tests shall be fabricated on a random basis during the cutting of threads on the reinforcing bars of each lot and shipped to the job site with the material they represent.

For shop produced complete joint penetration butt welds, shop produced resistance butt welded splices and all types of mechanical butt splices, except the sleeve-threaded type, the Engineer will designate when samples for job control tests are to be fabricated, and will determine the limits of the lot represented by each job control test.

Should the average of the results of tests made on the 3 sample splices or should more than one sample splice in any job control test fail to meet the requirements for splices, all splices represented by that test will be rejected in accordance with the provisions in Section 6-1.04, "Defective Materials," of the Standard Specifications. This rejection shall prevail unless the Contractor, at the Contractor's expense, obtains and submits evidence, of a type acceptable to the Engineer, that the strength and quality of the splices in the work are acceptable.

Section 52-1.08F, "Nondestructive Splice Tests" of the Standard Specifications is replaced with the following:

**52-1.08F Nondestructive Splice Tests.—**All required radiographic examinations of complete joint penetration butt welded splices shall be performed by the Contractor in accordance with the requirements of AWS D 1.4 and these specifications.

Prior to radiographic examination, welds shall meet the requirements of Section 4.4, "Quality of Welds," of AWS D1.4-92.

Radiographic examinations shall be performed on 25 percent of all complete joint penetration butt welded splices from a production lot. The size of a production lot will be a maximum of 100 splices. The Engineer will select the splices which will compose the production lot and also the splices within each production lot to be radiographically examined.

Should more than 12 percent of the splices which have been radiographically examined in any production lot be defective, an additional 25 percent of the splices, selected by the Engineer from the same production lot, shall be radiographically examined. Should more than 12 percent of the cumulative total of splices tested from the same production lot be defective, all remaining splices in the lot shall be radiographically examined.

Additional radiographic examinations performed due to the identification of defective splices shall be at the Contractor's expense.

All defects shall be repaired in accordance with the requirements of AWS D1.4.

Radiographic examinations will not be required for either shop produced complete joint penetration butt welds or shop produced resistance butt welded splices of No. 8 or smaller bars used as spiral or hoop reinforcement.

In addition to radiographic examinations performed by the Contractor, any mechanical or welded splice may be subject to inspection or nondestructive testing by the Engineer. The Contractor shall provide sufficient access facilities in the shop and at the jobsite to permit the Engineer or his agent to perform the inspection or testing.

The Contractor shall notify the Engineer in writing 48 hours prior to performing any radiographic examinations.

The radiographic procedure used shall conform to the requirements of ASME Boiler and Pressure Vessels Code, Section V, Article 2 and the following:

Two exposures shall be made for each complete joint penetration butt welded splice. For each of the two exposures, the radiation source shall be centered on each bar to be radiographed. The first exposure shall be

made with the radiation source placed at zero degrees from the top of the weld and perpendicular to the weld root and identified with a station mark of "0." When obstructions prevent a zero degree placement of the radiation source for the first exposure, and when approved in writing by the Engineer, the source may be rotated, around the centerline of the reinforcing bar, a maximum of 25 degrees. The second exposure shall be at 90 degrees to the "0" station mark and shall be identified with a station mark of "90."

For field produced complete joint penetration butt welds, no more than one weld shall be radiographed during one exposure. For shop produced complete joint penetration butt welds, if more than one weld is to be radiographed during one exposure, the angle between the root line of each weld and the direction to the radiation source shall be not less than 65 degrees.

Radiographs shall be made by either X-ray or gamma ray. Radiographs made by X-ray or gamma rays shall have densities of not less than 2.3 nor more than 3.5 in the area of interest. A tolerance of 0.05 in density is allowed for densitometer variations. Gamma rays shall be from the iridium 192 isotope and the emitting specimen shall not exceed 0.175-inch in the greatest diagonal dimension.

The radiographic film shall be placed perpendicular to the radiation source at all times; parallel to the root line of the weld unless source placement determines that the film must be turned; and as close to the root of the weld as possible.

The minimum source to film distance shall be maintained so as to insure that all radiographs maintain a maximum geometric unsharpness of 0.020 at all times, regardless of the size of the reinforcing bars.

All penetrameters shall be placed on the source side of the bar and perpendicular to the radiation source at all times. One penetrameter shall be placed in the center of each bar to be radiographed, perpendicular to the weld root, and adjacent to the weld. Penetrameter images shall not appear in the weld area.

When radiography of more than one weld is being performed per exposure, each exposure shall have a minimum of one penetrameter per bar, or three penetrameters per exposure. When 3 penetrameters per exposure are used, one penetrameter shall be placed on each of the 2 outermost bars of the exposure, and the remaining penetrameter shall be placed on a centrally located bar.

An allowable weld buildup of 1/8 inch may be added to the total material thickness when determining the proper penetrameter selection. No image quality indicator equivalency will be accepted. Wire penetrameters or penetrameter blocks shall not be used.

Penetrameters shall be sufficiently shimmed using a radiographically identical material. Penetrameter image densities shall be a minimum of 2.0 and a maximum of 3.6.

All radiographic film shall be Class 1, regardless of the size of reinforcing bars.

Radiographs shall be free of film artifacts and processing defects, including, but not limited to, streaks, scratches, pressure marks, or marks made for the purpose of identifying film or welding indications.

Each splice shall be clearly identified on each radiograph and the radiograph identification and marking system shall be established between the Contractor and the Engineer before radiographic inspection begins. Film shall be identified by lead numbers only; etching, flashing, or writing in identifications of any type will not be permitted. Each piece of film identification information shall be legible and shall include, as a minimum, the following information: Contractor's name, date, name of nondestructive testing firm, initials of radiographer, contract number, part number, and weld number. The letter "R" and repair number shall be placed directly after the weld number to designate a radiograph of a repaired weld.

Radiographic film shall be developed within a time range of one minute less to one minute more than the film manufacturer’s recommended maximum development time. Development on the jobsite will not be allowed.

Processing chemistry shall be done with a consistent mixture and quality, and processing rinses and tanks shall be clean to ensure proper results. Records of all developing processes and any chemical changes to the developing processes shall be kept and furnished to the Engineer upon request. The Engineer may request, at any time, that a sheet of unexposed film be processed in the presence of the Engineer to verify processing chemical and rinse quality.

All radiographs shall be interpreted and graded by a Level II or Level III technician who is qualified in accordance with the American Society for Nondestructive Testing's Recommended Practice No. SNT-TC-1A**.** The results of these interpretations shall be recorded on a signed certification and a copy kept with the film packet.

Technique sheets prepared in accordance with ASME Boiler and Pressure Vessels Code, Section V, Article 2 Section T-291 shall also contain the developer temperature, developing time, fixing duration and all rinse times.

All radiographic envelopes shall have clearly written on the outside of the envelope the following information: name of the Contractor's Quality Control Manager (QCM), name of the nondestructive testing firm, name of the radiographer, date, contract number, complete part description, and all included weld numbers or a report number, as detailed in the Contractor's Quality Control Plan (QCP). In addition, all innerleaves shall

have clearly written on them the part description and all included weld numbers, as detailed in the Contractor's QCP.

**10-1.41 ALTERNATIVE PIPE**

Alternative pipe culverts shall conform to the provisions in Section 62, "Alternative Culverts," of the Standard Specifications and these special provisions.

**10-1.42 PLASTIC PIPE**

Plastic pipe shall be polyvinyl chloride (PVC) plastic pipe, Schedule 80 conforming to the provisions for pipe for edge drain and edge drain outlets in Section 68-3.02, "Materials," of the Standard Specifications.

**10-1.43 REINFORCED CONCRETE PIPE**

Reinforced concrete pipe shall conform to the provisions in Section 65, "Reinforced Concrete Pipe," of the Standard Specifications and these special provisions.

The compaction required below the pipe spring line for pipe in Method 1 backfill in trench, where the pipe is not within the traveled way or under embankment, shall be 85 percent minimum.

Except as otherwise designated by classification on the plans or in the specifications, joints for culvert and drainage pipes shall conform to the plans or specifications for standard joints.

**10-1.44 GALVANIZED WELDED STEEL PIPE**

Welded steel pipe shall conform to the provisions in Section 70, "Miscellaneous Facilities," of the Standard Specifications and these special provisions.

Welded steel pipe, sleeve connectors and pipe straps shall be galvanized.

Galvanizing shall conform to Section 75-1.05, "Galvanizing," of the Standard Specifications.

**10-1.45 FLAGSTONE**

This work shall consist of furnishing and placing flagstone surfacing with mortar, as shown on the plans and as specified in Section 51, “Concrete Structures,” Section 52,” Reinforcement,” and Section 73-1.02, “Subgrade Preparation,” of the Standard Specifications and these special provisions.

The exact limits of flagstone to be placed will be determined by the Engineer Existing flagstone that has been saw cut to accommodate structure excavation shall be removed without damaging the flagstone to remain. Damaged flagstone, outside the limits of flagstone to be placed, shall be replaced at the Contractor's expense and will not be measured nor paid for.

Color of the flagstones shall be in the tan to light rose color range, closely matching the existing flagstone, and shall be of random sizes and shapes with a maximum length of 2 1/2 feet in any one direction. Mortar joints shall be one inch maximum width and gray in color to match existing joints.

Sand, for the mortar and sand base, shall be well graded and of such size that all will pass the No. 8 sieve.

Concrete used in the placement of flagstone shall be Class B and shall be reinforced as shown on the plans.

Flagstone will be measured by the square yard in accordance with the dimensions shown on the plans or such other dimensions as may be ordered in writing by the Engineer.

The contract price paid per square yard for flagstone shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing flagstone complete in place, including mortar, concrete, reinforcement, subgrade preparation and removal of existing flagstone, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**10-1.46 MISCELLANEOUS CONCRETE CONSTRUCTION**

Minor concrete (miscellaneous construction) shall conform to the provisions in Section 73, "Concrete Curbs and Sidewalks," of the Standard Specifications and these special provisions.

Relative compaction for the top 6 inches of the subgrade shall be not less than 90 percent. Relative compaction for the top 12 inches of the subgrade for the “LS4” sidewalk shall be not less than 90 percent.

Color concrete, where shown on the plans shall match “Coral Red” per L.M. Scofeild Co., standard color A-312.08.

If the Contractor elects to use the curing compound method for curing the concrete for minor concrete (miscellaneous construction) the curing compound shall be curing compound (6) as specified in Section 90-7.01B, "Curing Compound Method," of the Standard Specifications.

The curing compound shall be applied in a manner that will provide a complete coating of all exposed faces of the concrete surface.

Aggregate for minor concrete (textured paving) shall conform to the grading specified for fine aggregate in Section 90-3.03, "Fine Aggregate Grading," of the Standard Specifications. Aggregate for grout shall conform to the following grading:

| Sieve Sizes | Percentage Passing |
|---|---|
| No. 4 | 100 |
| No. 8 | 90 - 100 |
| No. 16 | 60 - 100 |
| No. 30 | 35 - 70 |
| No. 50 | 15 - 35 |
| No. 100 | 2 - 15 |

Samples of the colors specified for textured paving are available for review by prospective bidders at the office of the Department of Transportation 2829 Juan Street, San Diego, California. Portland cement concrete closely conforming to the colors specified for textured paving are available through commercial concrete sources.

A sample of sufficient size, of each type and color of the textured paving, to demonstrate the textured paving, including color hardener, curing and finishing compounds, for both grouted and ungrouted finishes, shall be submitted to the Engineer for written approval.

Textured paving shall not be placed on the project prior to approval by the Engineer of the samples prepared and submitted by the Contractor. In the event more than one sample of each type and color of textured paving to be placed, is required by the Engineer, each additional sample will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

Welded wire fabric, of the size and type shown on the plans, conforming to the provisions in Section 52, "Reinforcement," of the Standard Specifications, shall be placed in the textured paving areas shown on the plans.

Aggregate base shall be Class 2 and shall conform to the provisions in Section 26, "Aggregate Bases," of the Standard Specifications and these special provisions.

The respective pattern types and colors of concrete for textured paving shall be placed at the locations shown on the plans, struck off and compacted until a layer of mortar is brought to the surface. The concrete shall be screeded to the required grade and cross section and floated to a uniform surface.

Floor color hardener shall be applied to the plastic surface of the concrete by the "dry-shake" method using a minimum of 60 pounds of hardener per 100 square feet. Hardener shall be applied in 2 applications, shall be wood-floated after each application, and shall be trowelled only after the final floating. The resultant color of the floor hardener shall closely conform to the colors specified on the plans for the respective areas.

The forming tools for the textured paving shall be applied to form the patterned surfaces while the concrete is still in the plastic stage of set.

Textured paving areas shall be cured by the curing compound method. The curing compound shall be curing compound (6) as specified in Section 90-7.01B, "Curing Compound Method," of the Standard Specifications.

The textured paving shall be grouted in the sidewalk areas shown on the plans. The grout shall be placed after initial curing of that portion of the textured paving. The grout shall be spread over the textured concrete surface and consolidated by methods recommended by the grout manufacturer and approved by the Engineer. Surplus grout shall be removed by a squeegee and damp burlap rag, or other approved methods, before the curing seal is applied to the grouted areas.

Curing seal, and other deleterious substances shall be removed from the impressions in the textured areas, to receive the grout, before the grout is placed. Cleaning and removal methods shall not stain or discolor those portions of the textured paving to remain exposed after grouting. Methods of cleaning the impressions in textured areas to be grouted shall be approved by the Engineer.

The textured pattern and grout of the textured paving in sidewalk areas shall continue through the curb ramps, except for the grooved areas and the detectable warning surface area, if any, of the curb ramps.

For payment purposes, the area in square feet of minor concrete (textured paving) will be determined from horizontal measurements of the finished textured paving.

The contract price paid per square foot for minor concrete (textured paving) shall include full compensation for furnishing all labor, materials (including welded wire fabric, where required, and aggregate base), tools, equipment, and incidentals, and for doing all the work involved in constructing textured paving, including grouted areas, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price paid per cubic yard for minor concrete (colored) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing minor concrete, (Colored) complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**10-1.47 MISCELLANEOUS IRON AND STEEL**

Miscellaneous iron and steel shall conform to the provisions in Section 75, "Miscellaneous Metal," of the Standard Specifications and these special provisions.

The second paragraph in Section 75-1.06, "Measurement," of the Standards Specifications is amended to read:

Scale weights will not be required when miscellaneous iron and steel, miscellaneous bridge metal, miscellaneous metal (restrainer), or pumping plant metal work are designated as final pay items in the Engineer's Estimate.

**10-1.48 MISCELLANEOUS METAL (RESTRAINER-CABLE TYPE)**

Miscellaneous metal (restrainer-cable type) shall conform to the provisions for bridge joint restrainer units in Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications and these special provisions.

New concrete adjacent to restrainers shall be placed prior to installing restrainers.

An approved thread locking system, consisting of a cleaner, primer and anaerobic adhesive, shall be applied where shown on the plans. Lubricants and foreign materials shall be removed from the threaded areas of both parts using the cleaner and small wire brush. The primer shall be applied to cover the threaded areas of both parts. The anaerobic adhesive shall be applied to fill the male threads in the area of the final position of the nut. The nut shall be installed at the location or to the torque shown on the plans, and an additional fillet of anaerobic adhesive shall be applied completely around the exposed junctions of the nut and male part. Full compensation for furnishing and applying the thread locking system will be considered as included in the contract price paid for the item of work requiring the system and no separate payment will be made therefor.

The cable yield indicator shall be machined from hot-rolled bars of steel conforming to AISI Designation: C 1035 and shall be annealed, suitable for cold swaging. The heat number and manufacturer's identifying mark shall be stamped on the end surface of each cable yield indicator. The wall thickness of the reduced section of the cable yield indicator shall be machined by the Contractor so that the indicator yields at a load between 36.0 kips and 38.0 kips when tested in compression along the major axis at a test speed not to exceed one half inch per minute. Two certified copies of the mill test and heat treating reports of each heat of bars used for cable yield indicators shall be furnished to the Engineer.

The disc springs shall be made from steel conforming to ASTM Designation: A 684/A 684M, Grade 1075. Galvanizing of the disc springs will not be required. The disc springs shall be cleaned and painted with a paint recommended by the manufacturer and color coded as shown on the plans.

The seventh subparagraph of the fourth paragraph of Section 75-1.035, “Bridge Joint Restrainer Units,” of the Standard Specifications is amended to read:

The following materials shall be furnished to the Engineer at the manufacturer’s plant:

1. One sample cable assembly, consisting of a cable properly fitted with swaged fitting and right hand thread stud at both ends, 3 feet in total length, for each 200 cable assemblies or fraction thereof produced.
2. One turnbuckle fitted with an 8-inch stud at each end for each 200 turnbuckles or fraction thereof produced.
3. One percent of the cable yield indicators, but no fewer than 8, produced from each mill heat.
4. Two disc springs of each size produced from each mill heat.

The Contractor shall notify the Engineer, in writing, 2 days prior to tightening and setting of cable restrainer units.

The second paragraph in Section 75-1.06, "Measurement," of the Standards Specifications is amended to read:

Scale weights will not be required when miscellaneous iron and steel, miscellaneous bridge metal, miscellaneous metal (restrainer), or pumping plant metal work are designated as final pay items in the Engineer's Estimate.

Miscellaneous metal (restrainer-cable type) will be measured and paid for by the pound in the same manner specified for miscellaneous metal (restrainer) in Sections 75-1.06, "Measurement," and 75-1.07, "Payment," of the Standard Specifications.

**10-1.49 MISCELLANEOUS METAL (RESTRAINER-PIPE TYPE)**

Miscellaneous metal (restrainer-pipe type) shall consist of bridge joint pipe restrainers with double extra strong steel pipe and associated hardware as shown on the plans and in conformance with the requirements in Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications and in these special provisions.

The Contractor shall submit working drawings with the method of grouting the pipe restrainers in accordance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications.

Double extra strong steel pipe shall conform to the requirements of ASTM Designation: A53, Grade B.

Pipe restrainers shall be bonded to the existing concrete by completely filling the entire void between the pipe restrainer and the cored hole with grout within the limits shown on the plans. Grout shall conform to the provisions in Section 50-1.09, "Bonding and Grouting," of the Standard Specifications. Filler material and seals shall be provided along the sides of the pipe to be grouted, to prevent grout from entering the bridge hinge joints. The filler material and seals shall not restrict joint movement.

Miscellaneous metal (restrainer-pipe type) will be measured and paid for by the pound in the same manner specified for miscellaneous metal (restrainer) in Sections 75-1.06, "Measurement," and 75-1.07, "Payment," of the Standard Specifications.

Full compensation for bonding pipe restrainers to existing concrete shall be considered as included in the contract price paid per pound for miscellaneous metal (restrainer-pipe type) and no additional compensation will be allowed therefor.

**10-1.50 MISCELLANEOUS METAL (HIGH STRENGTH ROD)**

Miscellaneous metal (high strength rod) units consisting of high strength rods, bearing plates, couplers, anchorage devices, and incidentals shall conform to the details shown on the plans and the requirements in Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications and in these special provisions.

Rod assemblies shall conform to the materials and sampling requirements for prestressing steel in Section 50, "Prestressing Concrete," of the Standard Specifications and the following:

The high strength rods shall conform to the requirements of ASTM Designation: A 722, including all supplementary requirements.

Anchorage devices and couplers, conforming to the requirements specified herein, shall be of a type selected by the Contractor.

The anchorage device and coupler shall develop not less than 90 percent of the specified ultimate tensile strength of the steel rod.

The Contractor shall be responsible for determining the required lengths of the rod assemblies.

The rod assemblies shall be shipped as a complete unit including anchorage device and coupler.

Bearing plates shall conform to the requirements of ASTM Designation: A 36.

Miscellaneous metal (high strength rod) will be measured and paid for by the pound in the same manner specified for miscellaneous metal (restrainer) in Sections 75-1.06, "Measurement," and 75-1.07, "Payment," of the Standard Specifications.

Full compensation for any excavation and backfill required for rod installation in footings beyond the limits shown on the plans shall be considered as included in the contract price paid per pound for miscellaneous metal (high strength rod) and no additional compensation will be allowed therefor.

**10-1.51 CONCRETE BARRIER**

Concrete barriers shall conform to the provisions in Section 83-2, "Barriers," of the Standard Specifications and these special provisions.

The requirements of the third paragraph in Section 83-2.02D(4), "Finishing," of the Standard Specifications shall not apply.

Full compensation for light standard pedestal shall be considered as included in the contract price paid per linear foot for concrete barrier (Type 27SV) and no separate payment will be made therefor.

**10-1.52 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS**

Thermoplastic traffic stripes (traffic lines) and pavement markings shall conform to the provisions in Sections 84-1, "General," and 84-2, "Thermoplastic Traffic Stripes and Pavement Markings," of the Standard Specifications and these special provisions.

Thermoplastic paint for handicapped markings shall be commercial quality blue and shall be applied as per the manufacturer's recommendations.

Handicapped striping will be measured and paid for as thermoplastic pavement markings.

The State Specification No. for glass beads in Section 84-2.02, "Materials," of the Standard Specifications is amended to read "8010-21C-22 (Type II)."

Thermoplastic material shall conform to the requirements of State Specification No. 8010-21C-19.

At the option of the Contractor, permanent striping tape as specified in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions, may be placed instead of the thermoplastic traffic stripes and pavement markings specified herein, except that 3M, "Stamark" Series A320 Bisymetric Grade, manufactured by the 3M Company, shall not be used. Pavement tape, if used, shall be installed in accordance with the manufacturer's

specifications. If pavement tape is placed instead of thermoplastic traffic stripes and pavement markings, the pavement tape will be measured and paid for as thermoplastic traffic stripe and thermoplastic pavement marking.

**10-1.53 PAINT TRAFFIC STRIPES**

Painting traffic stripes (traffic lines) shall conform to the provisions in Sections 84-1, "General," and 84-3, "Painted Traffic Stripes and Pavement Markings," of the Standard Specifications and these special provisions.

Paint for handicapped striping shall be commercial quality blue applied as per the manufacturer's recommendations and white as per these special provisions. Striping shall be 2 coats.

Handicapped striping will be measured and paid for as paint traffic stripe.

The subparagraphs of the first paragraph in Section 84-3.02, "Materials," of the Standard Specifications are amended to read:

| | State Specification No. |
|---|---|
| Solvent Borne, Acrylic Copolymer Traffic Line - White, Yellow and Black | PT-170-A |
| Water Borne, Traffic Line - White, Yellow and Black | 8010-20A |

The State Specification No. for glass beads in Section 84-3.02, "Materials," of the Standard Specifications is amended to read "8010-004 (Type II)."

At the option of the Contractor, permanent striping tape as specified in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions, may be placed instead of the painted traffic stripes specified herein, except that "Stamark" Series A320 Bisymetric Grade pavement tape, manufactured by the 3M Company, shall not be used. Pavement tape, if used, shall be installed in accordance with the manufacturer's specifications. If pavement tape is placed instead of painted traffic stripes, the pavement tape will be measured and paid for as paint traffic stripe of the number of coats designated in the Engineer's Estimate.

Where striping is shown on the plans to join existing striping the Contractor shall begin and end transition from the existing striping pattern into or from the new striping pattern a sufficient distance to ensure continuity of the striping pattern.

**10-1.54 PAVEMENT MARKERS**

Pavement markers shall conform to the provisions in Section 85, "Pavement Markers," of the Standard Specifications and these special provisions.

The second paragraph in Section 85-1.02, "Type of Markers," of the Standard Specifications shall not apply.

Certificates of Compliance shall be furnished for pavement markers as specified in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions.

Attention is directed to "Traffic Control System For Lane Closure" elsewhere in these special provisions regarding the use of moving lane closures during placement of pavement markers with bituminous adhesive.

**10-1.55 MECHANICAL WORK**

**GENERAL.--**

**Scope.--**This work shall consist of performing mechanical work in accordance with the details shown on the plans and these special provisions.

Mechanical work shall include furnishing all labor, materials, equipment and services required to modify water and air systems at Piers 33, 35, and 36. )

Painting, and such other work incidental and necessary to the proper installation and operation of the mechanical work shall be in accordance with the requirements specified for similar type work elsewhere in these special provisions.

System layouts are generally diagrammatic and location of equipment is approximate. Exact routing of pipes, etc., and location of equipment is to be governed by structural conditions and obstructions. Equipment requiring maintenance and inspection is to be readily accessible.

**SUBMITTALS.--**

**Product data.--**A list of materials and equipment to be installed, manufacturer's descriptive data, and such other data as may be requested by the Engineer shall be submitted for approval.

Manufacturer's descriptive data shall include complete description for the materials and equipment specified herein.

Manufacturer's descriptive data shall be submitted for the following:

Coupling
Pipe
Support
Valve
Backflow Preventer

**CLOSEOUT SUBMITTALS.--**

**Project record drawings.--**Project record drawings shall be submitted in accordance with the requirements specified under "Project Record Drawings," in Section 12-1, "General Requirements," of these special provisions.

As the work progresses, the Contractor shall maintain a record of all deviations in the work from that shown on the plans. Final location of all underground work shall be recorded by depth from finished grade and by offset distance from permanent surface structures, i.e. buildings, curbs, walks, etc. In addition underfloor pipes, ducts, etc. within the building shall be recorded by offset distances from building walls.

**QUALITY ASSURANCE.--**

**Codes and standards.--**Mechanical work, including equipment, materials and installation, shall conform to the California Building Standards Code, Title 24, and to the California Code of Regulations, Title 8, Chapter 4, Division of Industrial Safety (DIS).

**WARRANTY.--**

**Warranties and guarantees.--**Manufacturer's warranties and guarantees for materials or equipment used in the work shall be delivered to the Engineer at the jobsite prior to acceptance of the contract.

**Equipment.--**All equipment shall be manufactured from material that is resistant to deterioration or corrosion in a marine environment or shall have a protective coating to provide such resistance. Seals and gasket materials shall be suitable for air or non-corrosive gases and shall be resistant to deterioration in a marine environment and hydrocarbons (air entrained petroleum or vehicle exhaust).

Miscellaneous bolts, nuts, washers, fasteners, and springs shall be 304 or 316 stainless steel.

## 10-1.56 PIPE, FITTINGS AND VALVES

**PART 1.- GENERAL**

**SUMMARY.--**

**Scope.--**This work shall consist of furnishing and installing, pipes, fittings and valves in accordance with the details shown on the plans and these special provisions. Pipe, fittings and valves shall include such plumbing and piping accessories and appurtenances, not mentioned, that are required for the proper installation and operation of the plumbing and piping systems.

The pipe sizes shown on the plans are nominal inside diameter. No change in the pipe size shown on the plans shall be permitted without written permission from the Engineer.

The pipe and fitting classes and material descriptions shall be as specified herein. No change in class or description shall be permitted without written permission from the Engineer.

**QUALITY ASSURANCE.--**

**Codes and standards.--**Pipe, fittings and valves shall be installed in accordance with the requirements in the latest edition of the Uniform Plumbing Code, the manufacturer's recommendations and the requirements specified herein.

**PART 2.- PRODUCTS**

**MATERIALS.--**

**PIPE AND FITTINGS --**

**AIR AND WATER LINE.--**

Water and air piping shall be cut grooved as required by the manufacturer and ANSI/AWWA Designation: C606 , complete with malleable iron housing clamp to engage and lock, “C” shaped composition sealing gasket, steel bolts, nuts, and washers; galvanized for galvanized pipe. The weight of the zinc coating shall be not less than 90 percent of that specified in ASTM Designation: A 53.

**Unions (for steel pipe).--**

Unions (for steel pipe) shall be 250-pound, threaded malleable iron, ground joint, brass to iron seat, galvanized or black to match piping.

**VALVES.--**

**Gate valve (3-inch and larger, above ground).--**

Gate valve (3-inch and larger, above ground) shall be iron body with bronze trim, removable bonnet and non-rising stem, class 125 and same size as pipe in which installed. Gate valve shall be Crane, 461; Nibco Scott, F-619; Jenkins, 326; or equal.

**Gate valve (3-inch and larger, below ground).--**

Gate valve (3-inch and larger, below ground) shall be AWWA double disc, hub or rubber ring type, removable bonnet and non-rising stem, equipped with operating nuts, 200-pound working pressure, and Tee handle wrench for each valve. Valve shall be Mueller, A-2380; American Valve, Model 28; or equal.

**Backflow preventer.--**

Backflow preventer shall be factory assembled with 2 check valves, one pressure differential relief valve, 2 ball valves and 4 test cocks. Backflow preventers shall be of the approved type reduced pressure principle devices listed by the County of Los Angeles Department of Health Services, Cross-Connection and Water Pollution Control Section, 313 North Figueroa Street, Los Angeles, California 90012, Room 306 B, Telephone (213) 974-7873.

**Valve box.--**

Valve box shall be precast high density concrete with polyethylene face and cast iron traffic rated cover marked "WATER". Extension shall be provided as required. Valve box shall be Christy, Brooks Products Company, Frazer, or equal.

**PART 3.- EXECUTION**

**INSTALLATION.--**

**INSTALLATION OF PIPES AND FITTINGS.--**

**Installing piping.--**Water piping shall be installed generally level.

**Water pipe near sewers.--**Water pipe shall not be installed below sewer pipe in the same trench or at any crossing, or below sewer pipe in parallel trenches less than 10 feet apart.

When a water pipe crosses above a sewer pipe, a vertical separation of at least 12 inches between the top of the sewer and the bottom of the water pipe shall be maintained.

When water and sewer pipe is installed in the same trench, the water pipe shall be on a solid shelf at least 12 inches above the top of the sewer pipe and 12 inches to one side.

**Cutting pipe.--**All pipe shall be cut straight and true and the ends shall be reamed to the full inside diameter of the pipe after cutting.

**Damaged pipe.--**Pipe that is cracked, bent or otherwise damaged shall be removed from the work.

**Pipe joints and connections.**--Joints in threaded steel pipe shall be made with teflon tape or a pipe joint compound that is nonhardening and noncorrosive, placed on the pipe and not in the fittings.

The use of thread cement or caulking on threaded joints will not be permitted. Threaded joints shall be made tight. Long screw or other packed joints will not be permitted. Any leaky joints shall be remade with new material.

**Cleaning and closing pipe.**--The interior of all pipe shall be cleaned before installation. All openings shall be capped or plugged as soon as the pipe is installed to prevent the entrance of any materials. The caps or plugs shall remain in place until their removal is necessary for completion of the installation.

**Securing pipe.**--Pipe shall be held in place by iron hangers, supports, pipe rests, anchors, sway braces, guides or other special hangers. Material for hangers and supports shall be compatible with the piping or neoprene isolators shall be used. Allowances shall be made for expansion and contraction. Steel pipe shall have hangers or supports every 10 feet. Vertical pipes shall be supported with clamps or straps. Horizontal and vertical piping shall be securely supported and braced to prevent swaying, sagging or flexing of joints.

**Hangers and supports.**--Hangers and supports shall be selected to withstand all conditions of loading to which the piping and associated equipment may be subjected and within the manufacturer's load ratings. Hangers and supports shall be spaced and distributed so as to avoid load concentrations and to minimize the loading effect on the structure.

Hangers and supports shall be sized to fit the outside diameter of pipe or pipe insulation. Hangers shall be removable from around pipe and shall have provisions for vertical adjustment after erection. Turnbuckles may be used.

Materials for holding pipe in place shall be compatible with piping material.

**Wrapping and coating steel pipe.**--Steel pipe buried in the ground shall be wrapped or shall be plastic coated as specified herein:

1. Wrapped steel pipe shall be thoroughly cleaned and primed as recommended by the tape manufacturer.

2. Tapes shall be tightly applied with 1/2 uniform lap, free from wrinkles and voids with approved wrapping machines and experienced operators to provide not less than 40 mils thickness.

3. Plastic coating on steel pipe shall be factory applied. Coating imperfections and damage shall be repaired to the satisfaction of the Engineer.

4. Field joints, fittings and valves for wrapped and plastic coated steel pipe shall be covered to provide continuous protection by puttying and double wrapping with 20-mil thick tape. Wrapping at joints shall extend a minimum of 6 inches over the adjacent pipe covering. Width of tape for wrapping fittings shall not exceed 2 inches. Adequate tension shall be applied so tape will conform closely to contours of fittings. Putty tape insulation compounds approved by the Engineer shall be used to fill voids and provide a smooth even surface for the application of the tape wrap.

Wrapped or coated pipe, fittings, and filed joints shall be approved by the Engineer after assembly. Piping shall be placed on temporary blocks to allow for inspection. Deficiencies shall be repaired to the satisfaction of the Engineer before backfilling or closing in.

**Thrust blocks.**--Thrust blocks shall be formed by pouring concrete between pipe and trench wall. Thrust blocks shall be sized and so placed as to take all thrusts created by maximum internal water pressure.

**Backflow preventer.**--Backflow preventer assembly shall include a wye strainer, backflow preventer, fittings and pipe. Assembly components shall be the same size as the pipe in which they are installed unless otherwise shown on the plans.

Backflow preventer shall be installed a minimum of 12 inches above ground and shall be the same size as the pipe in which it is installed unless otherwise shown on the plans.

**Flushing completed systems.**--All completed systems shall be flushed and blown out.

**FIELD QUALITY CONTROL.--**

**Testing.**--The Contractor shall test piping at completion of roughing in, before backfilling, and at other times as directed by the Engineer.

The system shall be tested as a single unit, or in sections as approved by the Engineer. The Contractor shall furnish necessary materials, test pumps, instruments and labor and notify the Engineer at least 3 working days in advance of testing. After testing, the Contractor shall repair all leaks and retest to determine that leaks have been stopped. Surplus water shall be disposed of after testing as directed by the Engineer.

The Contractor shall take precautions to prevent joints from drawing while pipes and appurtenances are being tested. The Contractor shall repair damage to pipes and appurtenances or to other structures resulting from or caused by tests.

**General tests.--**All piping shall be tested after assembly and prior to backfill, pipe wrapping, connecting fixtures, wrapping joints and covering the pipe. Systems shall show no loss in pressure or visible leaks.

The Contractor shall test systems according to the following schedule for a period of not less than 4 hours:

| Test Schedule | | |
|---|---|---|
| Piping System | Test Pressure | Test Media |
| Water | 125 psig | Water |
| Air | 150 psig | Air |

During testing of water systems, valves shall be closed and pipeline filled with water. Provisions shall be made for release of air.

**Testing backflow preventers.--**Backflow preventers installed by the Contractor shall be tested at the completion of the supply system installation for proper operation by a certified Backflow Preventer Tester.

The tester shall hold a valid certificate as a Backflow Preventer Tester from the county in which the device to be tested is located or, if the county does not have a certification program for Backflow Preventer Testers, the tester shall have a certificate from one of the following:

1. The American Water Works Association.
2. A county which has a certification program for Backflow Preventer Testers. The certification under which the tester has been certified shall be acceptable to the water purveyor and the local agency having jurisdiction.

Testing for proper operation shall conform to the procedures of the county in which the testing is being performed, or, if such procedures are not available in the county, such tests shall conform to the provisions in the latest edition of the Cross-Connection Control Procedure and Practices Manual, which is available from the California Department of Health Services, Sanitary Engineering Branch, 744 P Street, Sacramento, CA 95814.

The Contractor shall notify the Engineer at least 5 days prior to testing backflow preventers. Such tests shall be satisfactorily completed after installation of the backflow preventer assemblies and before operation of the systems.

One copy of all test results for each backflow preventer shall be furnished to the Engineer.

Full compensation for providing the certified Backflow Preventer Tester and for testing the backflow preventers shall be considered as included in the lump sum price paid for mechanical work and no additional compensation will be allowed therefor.

**MEASUREMENT AND PAYMENT.--**Furnishing and installing mechanical equipment, will be paid for on a lump sum basis and will be paid for as mechanical work.

The contract lump sum price paid for mechanical work shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing the mechanical equipment, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

## SECTION 10-2. HIGHWAY PLANTING AND IRRIGATION SYSTEMS

### 10-2.01 GENERAL

The work performed in connection with highway planting and irrigation systems shall conform to the provisions in Section 20, "Erosion Control and Highway Planting," of the Standard Specifications and these special provisions.

The Contractor shall notify the Engineer not less than 72 hours prior to requiring initial access to the existing irrigation controllers. When the Engineer determines that access to the controllers is required at other times, arrangements will be made to provide this access.

**10-2.01A COST BREAK-DOWN**

The Contractor shall furnish to the Engineer a cost break-down for the contract lump sum items of highway planting and irrigation system.

Cost break-downs shall be completed and furnished in the format shown in the samples of the cost break-downs included in this section. Unit descriptions of work shown in the samples are the minimum to be submitted. Additional unit descriptions of work may be designated by the Contractor. If the Contractor elects to designate additional unit descriptions of work, the quantity, value and amount for those units shall be completed in the same manner as for the unit descriptions shown in the samples. The units and quantities given in the samples are to show the manner of preparing the cost break-downs to be furnished by the Contractor.

The Contractor shall determine the quantities required to complete the work shown on the plans. The quantities and their values shall be included in the cost break-downs submitted to the Engineer for approval. The Contractor shall be responsible for the accuracy of the quantities and values used in the cost break-downs submitted for approval.

No adjustment in compensation will be made in the contract lump sum prices paid for highway planting and irrigation system due to any differences between the quantities shown in the cost break-downs furnished by the Contractor and the quantities required to complete the work as shown on the plans and as specified in these special provisions.

The sum of the amounts for the units of work listed in each cost break-down for highway planting and irrigation system work shall be equal to the contract lump sum price bid for the work. Overhead and profit shall be included in each individual unit listed in each cost break-down. Cost break-downs shall be submitted to the Engineer for approval within 15 working days after the contract has been approved. Cost break-downs shall be approved, in writing, by the Engineer before any partial payment for the items of highway planting and irrigation system will be made.

Approved cost break-downs will be used to determine partial payments during the progress of the work and as the basis of calculating the adjustment in compensation for the items of highway planting and irrigation system due to changes ordered by the Engineer. When an ordered change increases or decreases the quantities of an approved cost break-down, the adjustment in compensation will be determined in the same manner specified for increases and decreases in the quantity of a contract item of work in accordance with Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.

**IRRIGATION SYSTEM COST BREAK-DOWN**

**Contract No. 11-0219U4**

| UNIT DESCRIPTION | UNIT | APPROXIMATE QUANTITY | VALUE | AMOUNT |
|---|---|---|---|---|
| CHECK, TEST, SALVAGE AND REMOVE EXISTING IRRIGATION FACILITIES | LS | LUMP SUM | | |
| CONTROL AND NEUTRAL CONDUCTORS | LS | LUMP SUM | | |
| TEMPORARY CONTROL AND NEUTRAL CONDUCTORS IN CONDUIT | LF | 1365 | | |
| 1-1/4” TEMPORARY MANUAL CONTROL VALVE | EA | 3 | | |
| 1-1/2” TEMPORARY MANUAL CONTROL VALVE | EA | 1 | | |
| 2” TEMPORARY MANUAL CONTROL VALVE | EA | 1 | | |
| TEMPORARY PLASTIC PIPE (PR 200) (SUPPLY LINE) LATERAL | LF | 450 | | |
| 2” TEMPORARY PLASTIC PIPE (PR 200) (SUPPLY LINE) (MAIN) | LF | 795 | | |
| 2-1/2” TEMPORARY PLASTIC PIPE (PR 200) (SUPPLY LINE) (MAIN) | LF | 110 | | |
| 3” TEMPORARY PLASTIC PIPE (PR 200) (SUPPLY LINE) (MAIN) | LF | 1,255 | | |
| TEMPORARY CNC CONDUIT | LF | 1,365 | | |
| 1” ELECTRIC REMOTE CONTROL VALVE | EA | 26 | | |
| 1-1/4” ELECTRIC REMOTE CONTROL VALVE | EA | 4 | | |
| 1-1/2” ELECTRIC REMOTE CONTROL VALVE | EA | 38 | | |
| 2” ELECTRIC REMOTE CONTROL VALVE | EA | 2 | | |
| 8 STATION IRRIGATION CONTROLLER (WALL-MOUNTED) | EA | 1 | | |
| 12 STATION IRRIGATION CONTROLLER (WALL-MOUNTED) | EA | 2 | | |
| 24 STATION IRRIGATION CONTROLLER (WALL-MOUNTED) | EA | 2 | | |
| 3/4” PLASTIC PIPE (PR 200) (SUPPLY LINE) | LF | 6,015 | | |
| 1” PLASTIC PIPE (PR 200) (SUPPLY LINE) | LF | 5,686 | | |
| 1-1/4” PLASTIC PIPE (PR 200) (SUPPLY LINE) | LF | 1710 | | |
| 1-1/2” PLASTIC PIPE (PR 200) (SUPPLY LINE) | LF | 1,035 | | |
| 2” PLASTIC PIPE (PR 200) (SUPPLY LINE) | LF | 1,340 | | |

| | | | | |
|---|---|---|---|---|
| 2-1/2” PLASTIC PIPE (PR 200) (SUPPLY LINE) | LF | 145 | | |
| 3” PLASTIC PIPE (PR 200) (SUPPLY LINE) | LF | 1,235 | | |
| 1” PLASTIC PIPE (PR 315) (SUPPLY LINE) | LF | 120 | | |
| 1-1/2” PLASTIC PIPE (PR 315) (SUPPLY LINE) | LF | 575 | | |
| 2” PLASTIC PIPE (PR 315) (SUPPLY LINE) | LF | 1,555 | | |
| 1”BACKFLOW PREVENTER ASSEMBLY | EA | 3 | | |
| BACKFLOW PREVENTER ASSEMBLY ENCLOSURE | EA | 1 | | |
| SPRINKLER (TYPE A-2) | EA | 13 | | |
| SPRINKLER (TYPE A-3) | EA | 94 | | |
| SPRINKLER (TYPE A-6) | EA | 31 | | |
| SPRINKLER (TYPE A-8) | EA | 11 | | |
| SPRINKLER (TYPE A-9) | EA | 113 | | |
| SPRINKLER (TYPE A-12) | EA | 20 | | |
| SPRINKLER (TYPE B-2) | EA | 166 | | |
| SPRINKLER (TYPE B-3) | EA | 18 | | |
| SPRINKLER (TYPE B-4) | EA | 75 | | |
| SPRINKLER (TYPE C-2) | EA | 120 | | |
| SPRINKLER (TYPE C-2) (MODIFIED) | EA | 232 | | |
| 1” QUICK COUPLING VALVE | EA | 19 | | |
| 1-1/2” GATE VALVE | EA | 17 | | |
| 2” GATE VALVE | EA | 5 | | |
| 1-1/2” CNC CONDUIT | LF | 95 | | |
| 4” CONDUIT | LF | 335 | | |
| | | | | |

**TOTAL** _____

**HIGHWAY PLANTING COST BREAK-DOWN**

**Contract No. 11-0219U4**

| UNIT DESCRIPTION | UNIT | APPROXIMATE QUANTITY | VALUE | AMOUNT |
|---|---|---|---|---|
| ROADSIDE CLEARING | LS | LUMP SUM | | |
| CULTIVATE (SOIL AMENDMENT) | SQFT | 132,175 | | |
| SOIL AMENDMENT (NITROLIZED REDWOOD SHAVINGS) | CY | 660 | | |
| IRON SULFATE | LB | 465 | | |
| GYPSUM | LB | 10,574 | | |
| MULCH | CY | 122 | | |
| DECOMPOSED GRANITE | CY | 42. | | |
| GRASS PAVERS (SOD) | SQFT | 220 | | |
| COMMERCIAL FERTILIZER (GRANULAR) | LB | 956 | | |
| COMMERCIAL FERTILIZER (SLOW RELEASE) | LB | 485 | | |
| COMMERCIAL FERTILIZER (TABLET) | TAB | 4102 | | |
| PLANT (GROUP A) | EA | 1532 | | |
| PLANT (GROUP B) | EA | 258 | | |
| PLANT (GROUP F) | EA | 54,060 | | |
| PLANT (GROUP H) | EA | 31,815 | | |
| PLANT (GROUP J) | EA | 30 | | |
| PLANT (GROUP K) | EA | 2 | | |
| TURF (SOD)<br>PLANT (GROUP T) | SQFT | 119,495 | | |
| | | | | |

**TOTAL** _____

## 10-2.02 EXISTING HIGHWAY PLANTING

In addition to the provisions in Section 20 of the Standard Specifications, work performed in connection with existing highway planting shall be in accordance with the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

Replacement planting shall conform to the requirements specified under "Preservation of Property" elsewhere in these special provisions.

### 10-2.02A MAINTAIN EXISTING PLANTS

Existing plants shall be maintained as directed by the Engineer. Maintain existing plants, except as specified under "Park Maintenance," elsewhere in these special provisions, will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

### 10-2.02B REMOVE EXISTING PLANTS FOR TRENCHING

Remove existing plants for trenching shall conform to the provisions in Section 20-5.026, "Remove Existing Plants for Trenching," of the Standard Specifications and these special provisions.

Remove existing plants for trenching work shall consist of removing and replacing ground cover, pruning trees and shrubs within trench locations, applying preemergents and disposing of removed ground cover and prunings.

Replacement of removed ground cover within the maximum 5-foot width, as specified in Section 20-5.026 of the Standard Specifications, will be required, except for trenches within 5 feet of fences, curbs, dikes or shoulders.

Trees and shrubs adjacent to dikes, walks, fences, guard railing, and pavement edges may be pruned back 10 feet from these facilities to facilitate trenching work. When trenching is to be performed adjacent to other trees and shrubs that cannot be avoided, the trees and shrubs may be pruned upon receipt of prior written approval of the Engineer.

Pruning shall include removal of deadwood, suckers and broken or bruised branches one inch or larger in diameter. Pruning shall be consistent with American National Standards Institute (ANSI) A300-1995, "Tree, Shrub and Other Woody Plant Maintenance-Standard Practices," and "Tree-Pruning Guidelines," (1995) published by the International Society of Arboriculture (ISBN 1-881956-07-5). Tree seal compounds shall not be used to cover pruning cuts.

Removed ground cover and pruned materials shall be disposed of outside the highway right of way as provided in Section 7-l.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications. At the Contractor's option, removed ground cover and prunings may be reduced to chips. Chipped materials shall be spread within the highway right of way as directed by the Engineer.

Shrubs adjacent to dikes, fences, guard railing and edge of pavement within the 10-foot pruned area designated above, that in the opinion of the Engineer should be removed after pruning, shall be removed and disposed of. Removing and disposing of the shrubs not otherwise provided for will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

One application of a preemergent pesticide shall be applied to trenched areas in existing ground cover areas and to trenched areas adjacent to fences, curbs, dikes and shoulders. The Engineer will determine when the preemergent pesticide shall be applied.

Full compensation for removing existing plants for trenching work shall be considered as included in the contract lump sum price paid for irrigation system and no additional compensation will be allowed therefor.

### 10-2.02C PRUNE EXISTING PLANTS

Existing plants, as determined by the Engineer, shall be pruned. Pruning of the existing plants, except as otherwise provided elsewhere in these special provisions, will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

### 10-2.02D REMOVE EXISTING LAWN (SOD) FOR TRENCHING

Existing lawn (sod) shall be removed for trenching and replaced in accordance with the provisions in Section 20-4, "Highway Planting," of the Standard Specifications and these special provisions.

When pipe supply lines are to be installed by trenching in lawn areas, existing sod shall be removed prior to the start of trenching operations. Trench widths across existing lawn areas shall not exceed 12 inches.

Removed sod shall be reused over the backfilled trenches. Removed sod shall be stored in a cool place and shall be kept moist. If the Engineer determines that due to the Contractor's negligence, the removed sod is not suitable for use after storage, new sod of a similar variety shall be furnished and placed at the Contractor's expense. Removed sod not reused shall be removed and disposed of outside the highway right of way in accordance with the

provisions in Section 7-1.13 of the Standard Specifications. The work for reused sod shall also conform to the following:

Trenches shall be backfilled, compacted and graded such that the finished grade of the replacement sod matches the elevation of the adjacent existing sod. Any trench settlement occurring during the life of the contract shall be corrected by the Contractor at the Contractor's expense.

Sodded trench areas shall be watered as often and in sufficient amounts as conditions may require to keep the soil and plant roots moist during the life of the contract. If mowing is ordered by the Engineer and the work is not provided for elsewhere in these special provisions, the mowing will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

Lawn damaged by the Contractor's operations outside the 12-inch removal limit shall be replaced with new sod at the Contractor's expense.

**10-2.03 EXISTING HIGHWAY IRRIGATION FACILITIES**

In addition to the provisions in Section 20, "Erosion Control and Highway Planting," of the Standard Specifications, the work performed in connection with the various existing highway irrigation system facilities shall conform to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

Existing irrigation facilities shown on the plans or specified in these special provisions to be removed or salvaged shall remain in place until their use, as determined by the Engineer, is no longer required.

Existing irrigation facilities that are to remain or are to be salvaged as part of this contract, shall be protected from damage. If the Contractor's operations damage the existing irrigation facilities, the Contractor shall, at the Contractor's expense, repair or replace the damaged facilities as follows:

Repair or replacement of damaged facilities shall be completed within 10 working days of the damage.

Replaced irrigation facilities shall be new, and of equal or better quality than the damaged facility. Replacement irrigation facilities shall be compatible with the irrigation systems to remain.

After repair or replacement of the facilities is complete, the Contractor shall demonstrate to the Engineer that the repaired or replaced facilities operate properly. When remote control valves are repaired or replaced, the valves shall be tested with the irrigation controller in the automatic mode.

**10-2.03A CHECK AND TEST EXISTING IRRIGATION FACILITIES**

Existing irrigation facilities that are to remain that are within areas where clearing and grubbing or earthwork operations are to be performed, shall be checked for missing or damaged components and proper operation prior to performing the operations. Existing irrigation facilities outside of work areas that are affected by the construction work shall also be checked for proper operation.

The Contractor shall submit a written list of existing irrigation system deficiencies to the Engineer within 5 working days after checking the existing facilities.

Deficiencies found during checking existing facilities shall be corrected by the Contractor as directed by the Engineer. Corrective work ordered by the Engineer will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

Existing backflow preventers shall be tested in accordance with the requirements specified under "Irrigation Systems" elsewhere in these special provisions.

Length of watering cycles for use of potable water from water meters for checking or testing existing irrigation facilities shall be as determined by the Engineer.

Repairs to the existing irrigation facilities ordered by the Engineer after checking and testing the facilities, and any further repairs required thereafter as ordered by the Engineer, except as otherwise provided under "Existing Highway Irrigation Facilities" elsewhere in these special provisions, will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

Full compensation for checking and testing existing irrigation facilities, including testing existing backflow preventers, shall be considered as included in the contract lump sum price paid for irrigation system and no additional compensation will be allowed therefor.

**10-2.03B REMOVE EXISTING IRRIGATION FACILITIES**

Existing irrigation facilities to be removed, shall be removed and disposed of, except for facilities that are more than 6 inches below finished grade may be abandoned in place. Removed facilities shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications.

Immediately after disconnecting an existing irrigation facility to be removed or abandoned from an existing facility to remain, the remaining facility shall be capped or plugged, or shall be connected to a new or existing irrigation facility.

Full compensation for removing and disposing of existing irrigation facilities, and abandoning existing irrigation facilities, shall be considered as included in the contract lump sum price paid for irrigation system and no separate payment will be made therefor.

### 10-2.03C SALVAGE EXISTING IRRIGATION FACILITIES

Existing heads, controllers, backflow preventer assemblies, quick couplers, valves and valve boxes where shown on the plans to be removed, shall be salvaged.

The Contractor shall give the Engineer written notification of the intent to salvage existing irrigation facilities a minimum of 72 hours prior to salvaging these facilities.

Salvaged irrigation facilities shall remain the property of the State and shall be delivered to the Engineer.

A list of salvaged facilities, including the quantity and size of each item salvaged, shall be included with each delivery.

Existing irrigation facilities to be salvaged shall be disassembled at points of connection.

Full compensation for salvaging existing irrigation facilities shall be considered as included in the contract lump sum price paid for irrigation system and no additional compensation will be allowed therefor.

## 10-2.04 HIGHWAY PLANTING

The work performed in connection with highway planting shall conform to the provisions in Section 20-4, "Highway Planting," of the Standard Specifications and these special provisions.

### 10-2.04A HIGHWAY PLANTING MATERIALS

**PLANTS.--**Plants that are found to be in a root-bound condition or have an underdeveloped root ball as determined by the Engineer will not be accepted.

**MULCH**.--Mulch shall be wood chips.

**COMMERCIAL FERTILIZER**.--Commercial fertilizer (granular) for cultivated areas, applied just prior to cultivation, shall be a pelleted or granular form and shall have the following guaranteed chemical analysis:

| Ingredient | Percentage |
|---|---|
| Nitrogen | 16 |
| Phosphoric Acid | 20 |
| Water Soluble Potash | 0 |

Commercial fertilizer (granular) for sod areas, applied during plant establishment and park maintenance period, shall be a pelleted or granular form and shall have the following guaranteed chemical analysis:

| Ingredient | Percentage |
|---|---|
| Nitrogen | 16 |
| Phosphoric Acid | 6 |
| Water Soluble Potash | 8 |

Commercial fertilizer (slow release) shall be a pelleted or granular form, shall be a slow release type and shall have the following guaranteed chemical analysis:

| Ingredient | Percentage |
|---|---|
| Nitrogen | 19 |
| Phosphoric Acid | 6 |
| Water Soluble Potash | 12 |

Commercial fertilizer (tablet) shall be a slow release type and shall be in tablet form. Each tablet, as shown on the Plant List on the plans, shall have a mass of 21 ± 1 grams, and shall have the following guaranteed chemical analysis:

| Ingredient | Percentage |
|---|---|
| Nitrogen | 20 |
| Phosphoric Acid | 10 |
| Water Soluble Potash | 5 |

At the option of the Contractor, two 10 1/2 gram size tablets may be used in lieu of each 21-gram size tablet designated on the plans or specified elsewhere in these special provisions. Regardless of the tablet size used, each tablet shall be the slow release type and shall have the same guaranteed chemical analysis as specified for the 21-gram size tablets. Each 10 1/2-gram size tablet shall have a mass of 10 1/2 ± 0.5-grams.

**GRASS PAVERS.**--Grass pavers shall be installed at the locations shown on the plans, as specified in these special provisions, as per the manufacturer's instructions and as directed by the Engineer. Grass pavers shall be installed after the areas have been cultivated, graded and compacted.

Grass pavers shall be interlocking, lightweight, injection-molded plastic units, 20 inches by 20 inches, one inch in height. Units shall consist of hollow rings held together by an open grid mesh. Grass pavers shall be black in color, made of high density polyethylene material. Grass pavers shall have a loading capability equal to 5700 psi when filled with sand. A polyacrylimide polymer shall be spread at a rate of 2 pounds per 1000 sq. ft. immediately before installing grass pavers.

**EARTHWORK.**--Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Standard Specifications and these special provisions.

The grading plane at any point shall not be more than 0.05-foot above the grade established by the Engineer.

A relative compaction of not less than 95 percent shall be obtained for a minimum depth of 0.5-foot below the grading plane.

Surplus excavated material shall become the property of the Contractor and shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications.

**AGGREGATE BASE.**--Aggregate for aggregate base shall conform to the requirements specified for 3/4 inch, maximum, aggregate grading in Section 26-1.02A, "Class 2 Aggregate Base," of the Standard Specifications.

Aggregate base shall be a minimum of 0.33-foot thick. Aggregate base shall be spread and compacted in accordance with the provisions in Section 26-l.04, "Spreading", and Section 26-l.05, "Compacting," of the Standard Specifications.

**SAND BEDDING.**--Sand for grass pavers shall conform to the provisions in Section 19-3.025B, "Sand Bedding," of the Standard Specifications.

Full compensation for earthwork, aggregate base, sand bedding necessary for grass pavers shall be considered as included in the contract lump sum price paid for highway planting and no additional compensation will be allowed therefor.

**10-2.04B ROADSIDE CLEARING**

Prior to preparing planting areas or commencing irrigation trenching operations for planting areas, trash and debris shall be removed from proposed planting areas and within the areas extending beyond the outer limits of the proposed planting areas to the adjacent edges of existing planting to remain or to be maintained, shoulders, dikes, curbs, sidewalks, fences and walls.

In addition to removing trash and debris, the project area shall be cleared as specified herein:

Existing turf (sod), ground cover, shrubs, and trees designated on the plans to be removed shall be removed.

Weeds shall be killed and removed within proposed ground cover, and weeds shall be killed and removed within the area extending beyond the outer limits of the proposed ground cover areas to the adjacent edges of shoulders, dikes, curbs, sidewalks, walls, existing planting and fences. At locations where proposed ground cover areas are 12 feet or more from the adjacent edges of shoulders, dikes, curbs, sidewalks, walls and fences, the clearing limit shall be 6 feet beyond the outer limits of the proposed ground cover areas.

Weeds shall be killed within proposed planting areas where plants are to be planted in groups or rows 15 feet or less apart, and from within an area extending 6 feet beyond the outer limits of the groups or rows of plants.

Weeds shall be killed and removed within an area 6 feet in diameter centered at each proposed plant location where the plants are to be planted more than 15 feet apart and are located outside of proposed ground cover areas.

Existing ground cover shall be killed and removed from within an area 6 feet in diameter centered at each proposed plant location within existing ground cover areas.

After the initial roadside clearing is complete, additional roadside clearing work shall be performed as often as necessary to maintain the areas, as specified above, in a neat appearance until the start of the plant establishment period. This work shall include the following:

Trash and debris shall be removed.

Rodents shall be controlled.

Weed growth shall be killed before the weeds reach the seed stage of growth or exceed 6 inches in length.

Existing ground cover shall be killed and removed from within the 6-foot diameter areas specified for each proposed plant location within the existing ground cover areas.

Weeds in plant basins, including basin walls, shall be removed by hand pulling, after the plants have been planted.

**WEED CONTROL.**--Weed control shall also conform to the following:

Stolon type weeds shall be killed with glyphosate.

Tumbleweeds shall be removed by hand pulling before the tumbleweeds reach a height of 6 inches.

Removed weeds and ground cover shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications.

Roadside clearing work shall not include any work required to be performed as clearing and grubbing as specified in Section 16, "Clearing and Grubbing," of the Standard Specifications.

**10-2.04C PESTICIDES**

Pesticides used to control weeds shall conform to the provisions in Section 20-4.026, "Pesticides," of the Standard Specifications. Except as otherwise provided in these special provisions, pesticide use shall be limited to the following materials:

Diquat
Glyphosate
Oxadiazon - 50 percent WP (Preemergent)
Oryzalin (Preemergent)
Trifluralin (Preemergent)
Ammonium Sulfate

If the Contractor elects to request the use of other pesticides on this project, the request shall be submitted in writing to the Engineer not less than 10 working days prior to the intended use of the other pesticides. Except for the pesticides listed in the preceding paragraph, no pesticides shall be used or applied without prior written approval from the Engineer.

Glyphosate shall be used to kill stolon type weeds.

Oxadiazon shall be of the emulsifiable concentration or wettable powder type.

Ground cover plants shall be planted a minimum of 5 days and shall be watered prior to the application of preemergents.

A minimum of 100 days shall elapse between applications of preemergents.

Except for ground cover plants, preemergents shall not be applied within 18 inches of plants.

Ammonium sulfate shall be used only in areas planted to Carpobrotus. Ammonium sulfate shall not be applied in such a manner as to allow the pesticides to come in contact with trees or shrubs.

No pesticides shall be applied within the limits of plant basins. Pesticides shall not be applied in such a manner as to allow the pesticides to come in contact with the foliage and woody parts of proposed plants.

**10-2.04D PREPARING PLANTING AREAS**

Plants adjacent to drainage ditches shall be located so that after construction of the basins, no portion of the basin walls shall be less than the minimum distance shown on the plans for each plant involved.

**CULTIVATE.**--Areas shown on the plans to be cultivated shall be cultivated. Areas shall be cultivated to a depth of 12 inches.

Deleterious materials such as rocks, existing sod, dirt clods and weeds shall be removed and disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications.

Immediately prior to cultivation, soil amendment (nitrolized redwood shavings), gypsum and commercial fertilizer (granular) shall be added to the areas to be cultivated. Soil amendment (nitrolized redwood shaving), gypsum, and commercial fertilizer (granular) shall be thoroughly mixed with the soil. Material shall be added at the following rates:

| Material | Per 1000 SQFT (Slope Measurement) |
|---|---|
| Nitrolized Redwood Shavings | 5 CU YD |
| Gypsum | 80 Pounds |
| Commercial Fertilizer | 8 Pounds |

Removed material shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications.

**10-2.04E PLANTING**

Commercial fertilizer and iron sulfate shall be applied or placed at the time of planting and at the rates shown on the plans.

Commercial fertilizer (slow release) shall be applied to ground cover plants immediately after planting and watered into the soil.

Commercial fertilizer (tablet) shall be placed evenly around and approximately half the depth of the root ball for Plant (Group A, B, J and K) plants.

Mulch placed in areas outside of plant basins shall be spread to a depth of not less than 3 inches.

Mulch for plant basins shall be placed so that the mulch does not come in contact with the plant stem.

Mulch placed adjacent to earthen drainage ditches shall not be placed within 6 feet of the center line of the ditches. Mulch placed adjacent to paved drainage ditches shall not be placed within 3 feet of its edge.

Attention is directed to the requirements specified under "Irrigation Systems Functional Test" elsewhere in these special provisions regarding functional tests of irrigation systems. Planting shall not be performed in an area until the functional test has been completed on the irrigation system serving that area.

**TURF (SOD)**.--Turf (sod) shall be placed in the areas designated on the plans as "Turf."

Sod shall be either bermuda or St. Augustine as shown on the plans. Sod shall be healthy field grown sod containing not more than 1/2 inch thick thatch. The age of the sod shall be not less than 8 months nor more than 16 months.

Sod shall be grown in accordance with California agricultural codes. The sod shall be free from disease, weeds, insects, and nondesirable types of grasses and clovers. Soil upon which the sod has been grown shall contain less than 50 percent silt and clay.

Sod shall be machine cut at a uniform soil thickness of 5/8 ± 1/4 inch, not including top growth and thatch.

Sod that is dormant (December through March) shall be overseeded with rye a minimum of 2 weeks prior to planting.

A Certificate of Compliance for the sod shall be furnished to the Engineer in accordance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

Sod shall be protected with tarps or other protective covers during delivery and shall not be allowed to dry out during delivery or prior to placement.

Areas to be planted to sod shall be cultivated in accordance with the requirements specified under "Cultivate" elsewhere in these special provisions.

Weeds and debris shall be removed before cultivation and shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications.

Soil amendment and commercial fertilizer shall be applied at the rates shown on the plans and in accordance with the requirements specified under "Cultivate," elsewhere in these special provisions.

After cultivation, installation of irrigation systems, and excavation and backfilling of plant holes are completed, areas to be planted to sod shall be fine graded and rolled. Areas to be planted to sod shall be graded to drain and shall be smooth and uniform prior to placing sod. Areas to be planted to sod adjacent to sidewalks, concrete headers and other paved borders and surfaced areas shall be 1 1/2 ± 1/4 inches below the top grade of the facilities after fine grading, rolling and settlement of the soil.

Sod shall be placed so that ends of adjacent strips of sod are staggered a minimum of 2 feet. Edges and ends of sod shall be placed firmly against adjacent sod and against sidewalks, concrete headers, and other paved borders and surfaced areas.

After placement of the sod, the entire sodded area shall be lightly rolled to eliminate air pockets and to ensure close contact with the soil. After rolling, the sodded areas shall be watered so that the soil is moistened to a

minimum depth of 4 inches. Sod shall not be allowed to dry out. Sod areas shall be watered 2 to 3 times per day for the first 2 weeks after planting.

Except for maintenance, vehicular and foot traffic shall not be allowed for 30 days after the sod has been laid. Temporary sod will be exempt from this requirement.

Temporary sod will be place prior to the Contractor vacating Chicano Park for Chicano Park Day, April 21. Temporary sod shall be placed between the period of April 13 and April 20.

The placing, removing and disposing of the temporary sod will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

If irregular or uneven areas appear before or during the plant establishment period, these areas shall be restored to a smooth and even appearance.

Sod shall be mowed to a height of one inch once every 7 days, beginning on the 14 day after the sod has been laid. All sod edges, including edges adjacent to sidewalks, concrete headers, and other paved borders and surfaced areas, shall be trimmed to a uniform edge not extending beyond the edge of sod or the facilities. Mowed and trimmed growth shall be removed and disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications. Trimming shall be done at the time of mowing.

Mowing and trimming sod and disposing of mowed material, during the plant establishment period, will be paid for as provided under "Plant Establishment Work" elsewhere in these special provisions.

**10-2.04F DECOMPOSED GRANITE**

Decomposed granite shall be placed at the locations shown on the plans and in accordance with these special provisions.

Decomposed granite shall be igneous rock which has been weathered in place and shall match the color of a sample available for inspection by bidders at the Caltrans District Office, District Landscape Architecture, 2829 Juan Street, San Diego, California 92110.

Decomposed granite shall be free from vegetable matter and other deleterious substances, and shall be of such nature that it can be compacted readily under watering and rolling to form a firm and stable base.

An organically powered decomposed granite binder specifically manufactured to harden decomposed granite or soil shall be thoroughly mixed with the decomposed granite at the rate of 10 pounds per ton of decomposed granite prior to placement. Binder material shall be mixed by the supplier of decomposed granite at the time of producing material.

Weeds within areas to receive decomposed granite shall be killed and removed prior to placing material. One application of a preemergent pesticide shall be applied to areas to receive decomposed prior to placing material. Preemergent shall conform to the provisions under “Pesticides,” elsewhere in these special provisions.

After clearing, the areas to receive decomposed granite shall be graded to a smooth surface. All vehicles used for spreading, grading, and raking the decomposed granite shall have one set of wheels with flotation tires having a minimum width of 18 inches to allow equal compaction.

Decomposed granite shall be placed in two layers compacted to a depth of 3 inches as shown on the plans.

The first layer of decomposed granite shall be placed, watered, rolled and compacted to not less than 90 percent relative compaction. Following approval by the Engineer of the compacted layer of decomposed granite, the second layer of decomposed granite shall be placed, watered, rolled and compacted to not less than 90 percent relative compaction.

After rough spreading and final grading operations of each decomposed granite layer, the decomposed granite shall be raked to evenly blend the different gradation sizes and graded to form a smooth uniform surface. The decomposed granite shall be saturated with water to the full depth of the decomposed granite area. The Engineer will determine the amount of water necessary to aid in the compaction.

Equipment operations for compacting decomposed granite areas after water has been applied shall be done in a manner that uniformly maximizes the equipment size and weight to form a smooth uniform surface at 90 percent relative compaction.

Full compensation for decomposed granite shall be considered as included in the contract lump sum price paid for highway planting and no separate payment will be made therefor.

**10-2.04G PLANT ESTABLISHMENT WORK**

The plant establishment period shall be Type 2 and shall be not less than 120 working days.

Chicano Park shall be open at all times for public use during the plant establishment period.

Trash and debris removed from the park shall not be disposed in trash receptacles within the park. The trash receptacle within the park are for public usage and will be the responsibility of others.

Attention is directed to "Turf (Sod)" elsewhere in these special provisions regarding vehicular and foot traffic on newly planted sod.

Attention is directed to "Relief From Maintenance and Responsibility" elsewhere in these special provisions regarding relief of maintenance and protection.

Two applications of commercial fertilizer (granular) shall be applied to sod areas when directed by the Engineer. Commercial fertilizer shall be applied at the rates shown on the plans and shall be spread with a mechanical spreader wherever possible.

Two applications of commercial fertilizer (slow release) shall be applied to trees, shrubs, vines and ground cover areas when directed by the Engineer. Commercial fertilizer shall be applied at the rates shown on the plans and shall be spread with a mechanical spreader wherever possible.

Weeds within plant basins, including basin walls, shall be controlled by hand pulling.

Weeds within mulched areas, sod and ground cover, but outside of plant basins, shall be controlled by killing.

Weeds within decomposed granite areas shall be killed and removed.

Vines shall be trained onto walls.

At the option of the Contractor, plants of a larger container size than those originally specified may be used for replacement plants during the plant establishment period. The use of plants of a larger container size than those originally specified for replacement plants shall be at the Contractor's expense.

When ordered by the Engineer, one application of a preemergent pesticide conforming to the requirements specified under "Pesticides" elsewhere in these special provisions, shall be applied between 40 and 50 working days prior to completion of the plant establishment period. This work will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

When the Engineer determines that the plant stakes are inadequate to support the plants during the plant establishment period, the Contractor, at his cost, shall replace the plant stakes with a larger diameter stake adequate to support the plant. Plant stakes shall be removed at any time during the plant establishment period when ordered by the Engineer. Plant stakes shall be completely removed within 15 working days prior to completion of the plant establishment period.

The Contractor shall submit a watering schedule program, for each irrigation controller, to the Engineer for approval not less than 40 working days prior to the completion of the plant establishment period. If the Engineer determines the submitted watering schedule is unacceptable, the Contractor shall submit a revised watering schedule to the Engineer for approval within 5 working days after receiving notice that the previously submitted schedule is unacceptable.

Written instructions shall be given to the Engineer during the plant establishment period on the use and adjustment of the installed irrigation controllers. The approved watering schedule program shall be implemented by the Contractor not less than 10 working days prior to the completion of the plant establishment period. The programming shall not relieve the Contractor of the responsibility to apply sufficient water as conditions may require to keep the plants in a healthy condition.

The final inspection, as specified in Section 5-1.13 of the Standard Specifications, shall be completed a minimum of 20 working days before the estimated completion of the contract.

Sod areas shall be mowed in accordance with the requirements specified under "Turf (Sod)" elsewhere in these special provisions.

Full compensation for mowing and trimming sod and disposing of mowed and trimmed material during the plant establishment period shall be considered as included in the contract lump sum price paid for plant establishment work and no additional compensation will be allowed therefor.

**10-2.04H PARK MAINTENANCE**

The Contractor shall perform park maintenance to the area shown on the plans as Chicano Park. Park maintenance for the area bordered by Crosby Street, National Avenue, Logan Avenue and the east bound off ramp to National Avenue (stages 2A, 3A, 4A, and 6A) shall commence when the contractor begins work on stage 2A and conclude when the plant establishment period for stage 6A is completed. Park maintenance for stages for the area bordered by Crosby Street. Logan Avenue, Route 5 and the south bound on ramp from Logan Avenue (stages 5 and 6B) shall commence when the contractor begins work on stage 5 and conclude when the plant establishment period for stage 6B is completed.

The park, except for areas under construction, shall be open at all times for public use. Park maintenance shall be performed in areas not under construction or in plant establishment.

Park maintenance shall conform to the provisions of Section 20-4.08, “Plant Establishment” of the Standards Specifications, except paragraph 2 shall not apply.

Park maintenance shall also conform to the following:

Sod shall be mowed to a height of 1 inch once every 7 days. Sod shall be mowed using a reel type mower. All sod edges, including edges adjacent to sidewalks, concrete headers, header boards, and other paved borders and surfaced areas, shall be trimmed to a uniform edge not extending beyond the edge of sod or the facilities. Mowed

and trimmed growth shall be removed and disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13 of the Standard Specifications. Trimming shall be done at the time of mowing.

Sod, except for sod planted less than 4 months, shall be aerated a minimum of once every 6 months or when directed by the Engineer.

An application of commercial fertilizer (granular) (16-6-8) shall be applied to all sod areas every 8 weeks or when directed by the Engineer. Commercial fertilizer shall be applied at a rate of 8 pounds per 1000 square feet and shall be spread with a mechanical spreader.

An applications of commercial fertilizer (slow release) shall be applied to trees, shrubs, vines and ground cover areas every 6 months or when directed by the Engineer. Commercial fertilizer shall be applied at the rates shown on the plans for plant establishment and shall be spread with a mechanical spreader wherever possible.

Weeds within plant basins, including basin walls, shall be controlled by hand pulling.

Weeds within mulched and sod areas, and ground cover, but outside of plant basins, shall be controlled by killing.

Existing plants, as determined by the Engineer, shall be pruned. Pruning of the existing plants will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

During the park maintenance period, electric automatic irrigation systems shall be operated in the automatic mode, unless automatic operation is not possible due to construction work or otherwise permitted by the Engineer. When any electric automatic irrigation component is operated manually on a working day, the day will not be credited as a the park maintenance working day unless such manual operation has been permitted in writing by the Engineer.

Trash and debris removed from the park shall not be disposed in trash receptacles within the park. The trash receptacle within the park are for public usage and will be the responsibility of others.

The contract lump sum price paid for park maintenance shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in park maintenance, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**10-2.04I PAYMENT**

Highway planting work will be paid for as a single contract lump sum price for highway planting, except that park maintenance and plant establishment work will be paid for separately as provided elsewhere in these special provisions.

**10-2.05 IRRIGATION SYSTEMS**

Irrigation systems shall be furnished and installed in accordance with the provisions in Section 20-5, "Irrigation Systems," of the Standard Specifications, except materials containing asbestos fibers shall not be used.

Materials for irrigation systems, unless otherwise specified, shall be commercial quality.

Temporary supply line (main), temporary supply line (lateral) and temporary conduit for control and neutral conductors shall be installed at the locations shown on the plans. Temporary supply line (main) and temporary conduit shall be installed on grade and anchored by any method approved by the Engineer. Temporary supply line (lateral) shall be installed a minimum of 6 inches below existing grade.

Temporary supply lines shall remain in place until their use, as determined by the Engineer, is no longer required. Removed material shall become the property of the Contractor. Materials used for temporary facilities shall not be used for permanent installation. All materials for irrigation systems shall be new.

Pipe supply lines shall be pressure tested in accordance with the provisions in Section 20-5.03H, "Pressure Testing," of the Standard Specifications, except the pipe (supply line) on the discharge side of the control valve shall be tested by Method B as specified in Section 20-5.03H(2), "Method B," of the Standard Specifications.

Quick coupling valves shall be double slot type, with self closing, locking caps. Except for the cap, quick coupling valves shall be of brass or bronze construction.

**VALVE BOXES.**--Valve boxes shall conform to the requirements in Section 20-2.24, "Valve Boxes," of the Standard Specifications, except as otherwise provided herein.

Valve boxes shall be precast portland cement concrete, fiberglass, or reinforced plastic.

Covers for concrete valve boxes shall be glass fiber reinforced plastic or concrete.

Covers for plastic valve boxes shall be glass fiber reinforced plastic.

Valve boxes within Chicano Park shall be precast portland cement concrete. The Contractor shall install a marine type stainless steel machine bolt with self-locking nut as a locking mechanism.

Valve boxes shall be identified on the top surface of the covers by stenciling with paint the appropriate abbreviations for the irrigation facilities contained in the valve boxes as shown on the plans. Valve boxes that contain remote control valves shall be identified by the appropriate letters and numbers (controller and station

numbers). The letters and numbers shall be 2 inches in height. The stenciling paint shall be an aluminum asphaltic-base waterproof paint of a color which contrasts with the valve box covers.

**10-2.05A ELECTRIC AUTOMATIC IRRIGATION COMPONENTS**

**IRRIGATION CONTROLLERS.--**Irrigation controllers shall be single, solid-state independent controllers conforming to the following:

1. Irrigation controllers shall be fully automatic and shall be capable of operating a complete 14-day or longer irrigation program.
2. A switch or switches shall be provided on the face of the control panel that will turn the irrigation controller on or off and provide for automatic or manual operation. Manual operation shall allow watering by station or program.
3. The watering time of each station shall be displayed on the face of the control panel.
4. The irrigation controller and the low voltage output source shall be protected by fuses or circuit breakers.
5. The irrigation controller mechanism, panel, and circuit board shall be connected to the low voltage control and neutral conductors by means of plug and receptacle connectors located in the irrigation controller enclosure.
6. Each station shall have a variable or incremental timing adjustment with a range of 99 minutes to a minimum of one minute in one minute increments.
7. Irrigation controllers shall be capable of a minimum of 4 program schedules with 8 start times each.
8. Irrigation controllers shall have an output that can energize a pump start circuit or a remote control valve (master).
9. Irrigation controllers shall be manufactured by the same company.
10. Where direct burial conductors are to be connected to the terminals strip, the conductors shall be connected with the proper size open-end crimp-on wire terminals. No exposed wire shall extend beyond the crimp of the terminal and the wires shall be parallel on the terminal strip.
11. Irrigation controllers shall have a water budgeting feature to increase or decrease irrigation time from 0-300 percent in one percent increments.

Attention is directed to the requirements specified in Section 10-3, "Signals, Lighting and Electrical Systems," elsewhere in these special provisions, regarding electrical power for irrigation controllers and irrigation controller enclosure cabinets.

**ELECTRIC REMOTE CONTROL VALVES.--**Electric remote control valves shall conform to the following:

1. Valves shall be of glass filled nylon, brass, bronze, or cast iron construction.
2. Valves shall be normally closed.
3. Valves shall be completely serviceable from the top without removing the valve body from the system.
4. Valves shall be equipped with a device that will regulate and adjust the flow of water and shall be provided with a manual shutoff. The manual shutoff for valves large than 3/4 inch shall be operated by a cross handle.
5. Valves for each irrigation controller shall be the same model series and shall be compatible with the model series of the irrigation controller.
6. Valve solenoids shall operate on the low voltage AC current supplied from the irrigation controller.
7. Valves shall be angle pattern (bottom inlet) or straight pattern (side inlet) as shown on the plans.
8. Valves shall be provided with manual bleeding devices.
9. Valves shall be equipped with internal diaphragms installed in the valve body casting.
10. Valve inlets and outlets shall have threaded fittings.

**PULL BOXES.--**Pull box installations shall conform to the provisions in Section 20-5.027I, "Conductors, Electrical Conduits and Pull Boxes," of the Standard Specifications.

**CONDUCTORS.--**Low voltage as used in this subsection "Conductors" shall mean 36 volts or less.

Low voltage control and neutral conductors in pull boxes and valve boxes, at irrigation controller terminals, and at splices shall be marked with adhesive cloth wrap-around markers.

Markers for the control conductors shall be identified with the appropriate number or letter designations of irrigation controllers and station numbers. Markers for neutral conductors shall be identified with the appropriate number or letter designations of the irrigation controllers.

New control and neutral conductors that are to replace existing control and neutral conductors shall be the same size and color as the existing control and neutral conductors being connected to.

The color of low voltage neutral and control conductor insulation, except for the striped portions, shall be homogeneous throughout the entire thickness of the insulation.

At the Contractor's option, conductors may be joined by UL or ETL listed, twist-type, watertight connectors provided such materials and methods have been approved in writing by the Engineer prior to their first use on the project.

Where a twist-type, watertight connector is used, the soldering of the splice will not be required. Connections made with twist-type, watertight connectors will not require low-voltage tape, insulating pads or heat-shrink tubing.

In addition, conductors within Chicano Park shall be color coded as follows:

| Valve Number | Color |
|---|---|
| 1 | Yellow |
| 2 | Orange |
| 3 | Blue |
| 4 | Black |
| 5 | Brown |
| 6 | Purple |
| 7 | Yellow with Black Stripe |
| 8 | Orange with Black Stripe |
| 9 | Red with Black Stripe |
| 10 | White with Red Stripe |
| 11 | Yellow with Red Stripe |
| 12 | Blue with Red Stripe |
| 13 | Orange with Red Stripe |
| 14 | Purple with White Stripe |
| 15 | Brown with White Stripe |
| 16 | Yellow with White Stripe |
| 17 | Blue with White Stripe |
| 18 | Red with White Stripe |

Share wires shall be red in color.

Wire bundles for each controller shall be taped together using the following colored tape:

| Controller | Tape Color |
|---|---|
| "A" | Black |
| "B" | Red |
| "C" | White |

Trenches for direct burial conductors within Chicano Park shall be marked with a trench marker tape. Tape shall be a red colored plastic tape, 3 inch wide and placed 9 inches below finished grade directly above conductors.

Prior to granting relief from maintenance and responsibility, as provided elsewhere in these special provisions, the functional test, as specified in Section 20-5.027J, "Testing," of the Standard Specifications, shall be satisfactorily completed, and instruction shall be given to the Engineer on the use and adjustment of the installed irrigation controllers.

**10-2.05B IRRIGATION SYSTEMS FUNCTIONAL TEST**

Functional tests for irrigation controllers and associated automatic irrigation systems shall conform to the provisions in Section 20-5.027J, "Testing," of the Standard Specifications and these special provisions.

Tests shall consist of demonstrating to the Engineer, through one complete cycle of the irrigation controllers in the automatic mode, that the associated automatic components of the irrigation systems operate properly. If automatic components of the irrigation systems fail a functional test, these components shall be repaired at the Contractor's expense and the testing repeated until satisfactory operation is obtained.

Associated automatic components shall include, but not be limited to, remote control valves.

Upon completion of work on an irrigation system, including correction of deficiencies and satisfactory functional tests for the systems involved, the plants to be planted in the area watered by the irrigation system may be planted, provided the planting areas have been prepared as specified elsewhere in these special provisions.

**10-2.05C PIPE**

**COPPER PIPE.--**Copper pipe shall be seamless, Type K hard drawn tubing.

Copper pipe supply lines installed between water meters and backflow preventer assemblies shall be installed not less than 18 inches below finished grade, measured to the top of the pipe.

**PLASTIC PIPE.--**Plastic pipe supply lines shall be polyvinyl chloride (PVC) 1120 or 1220 pressure rated pipe with minimum pressure ratings (PR) as shown on the plans.

Plastic pipe supply lines and fittings that are 2 inches or larger in diameter on the supply side of control valves shall be the rubber ring gasket type, except when PR 315 plastic pipe supply line is required.

Plastic pipe supply lines less than 2 inches in diameter shall have solvent cemented type joints. Primers shall be used on the solvent cemented type joints.

Plastic pipe supply lines installed in conduit shall have a minimum pressure rating (PR) of 315 psi.

Solvent cement for plastic pipe supply lines shall conform to the requirements of the local Air Quality Management District.

Trenches for plastic pipe supply lines within Chicano Park shall be backfilled with 6 inches of sand before backfilling with the original soil taken from the trench.

Plastic pipe supply lines upstream from the remote control valves (mainlines) within Chicano Park shall be marked with a detectable tape. Tape shall be a blue colored metallic tape and placed 9 inches below finished grade directly above the supply line.

**10-2.05D IRRIGATION CONDUIT**

Irrigation conduit shall be polyvinyl chloride (PVC) plastic pipe, class 1120 or 1220, with a minimum pressure rating (PR) of 315, and shall conform to Sections 20-2.15B(1), "Plastic Pipe Supply Line," and 20-5.03B "Conduit for Water Line Crossovers and Sprinkler Control Crossovers," of the Standard Specifications and these Special Provisions.

Irrigation conduit shall be installed 12 inches below finished grade and shall extend 4 inches beyond edge of paved surfaces. Conduit to be installed under existing paved surfaces shall be install by jack or drill method. Conduit to be installed under new paved surfaces shall be installed prior to placing surfaces.

Irrigation conduit shall be installed at locations shown on the plans.

Full compensation for conduit shall be considered as included in the contract lump sum price paid for irrigation system and no additional compensation will be allowed therefor.

**10-2.05E BACKFLOW PREVENTER ASSEMBLIES**

Backflow preventers shall be one of the approved reduced pressure principle devices listed by the California Department of Health Services, Division of Drinking Water and Environmental Management, 601 North 7th Street, MS 92, P O Box 942732, Sacramento, CA 94234-7320.

Pressure loss through the backflow preventers shall not exceed the following:

| BACKFLOW PREVENTER SIZE (inches) | FLOW RATE (GPM) | PRESSURE LOSS (psi) |
|---|---|---|
| 1 | 40 | 12 |

Backflow preventer assemblies shall be painted with a minimum of 2 applications of a commercial quality enamel paint. The color of the paint shall be light brown.

**BACKFLOW PREVENTER ASSEMBLY ENCLOSURES**.--Enclosures shall be fabricated of structural steel angles and flattened expanded metal and shall be installed over backflow preventer assemblies on a portland cement concrete pad in accordance with the details shown on the plans. There shall be a 2 inches minimum clearance between the backflow preventer assembly and the backflow preventer assembly enclosure. The concrete pad shall extend a minimum of 2 inches beyond the outer limits of the backflow preventer assembly enclosure, unless otherwise shown on the plans and these special provisions.

Expanded metal for sides, ends, and top panels shall be fabricated from 0.074-inch (14-gage), minimum thickness, sheet steel. The flattened expanded metal openings shall be approximately 3/4 inch by 1 3/4 inches in size.

Expanded metal panels shall be attached to the steel frames by a series of welds, not less than 1/4 inch in length and spaced not more than 4 inches on centers, along the edges of the enclosures.

Enclosure door handles shall have provisions for padlocking in the latched position. Padlocks will be State-furnished as provided under "State-furnished Materials" elsewhere in these special provisions.

Enclosures shall be galvanized, after fabrication, in accordance with the requirements specified in Section 75-1.05, "Galvanizing," of the Standard Specifications.

Hold down bolt assemblies shall be galvanized and shall be installed when the portland cement concrete pad is still plastic. Nuts shall be hexagonal and washers shall be the lock type.

Enclosures shall be painted with one application of a commercial quality pre-treatment, vinyl wash primer and a minimum of one application of a commercial quality, exterior enamel for metal. The finish color shall be light brown.

**TESTING BACKFLOW PREVENTERS**.--New backflow preventers installed by the Contractor and existing backflow preventers to remain in place shall be tested for proper operation by a certified Backflow Preventer Tester.

The backflow preventer tester shall hold a valid certification as a Backflow Preventer Tester from the county in which the device to be tested is located, or if the county does not have a certification program for Backflow Preventer Testers, the tester shall have a certificate from one of the following:

1. The American Water Works Association.
2. A county which has a certification program for Backflow Preventer Testers.

Testing for proper operation shall conform to the provisions of the county in which the testing is being performed or, if these procedures are not available, the tests shall conform to the provisions in the latest edition of the Guidance Manual for Cross-Connection Control Program, which is available from the California Department of Health Services, Division of Drinking Water and Environmental Management, 601 North 7th Street, MS 92, P.O. Box 942732, Sacramento, CA 94234-7320, Telephone: (916) 327-4097 or (916) 323-6111.

Tests for new backflow preventers shall be satisfactorily completed after installation of the backflow preventer assembly and before operation of the irrigation systems. Existing backflow preventers shall be tested, and repaired if required, when existing irrigation facilities are checked.

Repair of relocated or existing backflow preventers will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications when ordered by the Engineer, except damage caused by the Contractor's operations.

The Contractor shall notify the Engineer at least 5 days prior to testing backflow preventers.

One copy of the test results for each backflow preventer and a valid certification from the backflow preventer tester shall be furnished to the Engineer. New backflow preventers failing required tests shall be repaired or replaced at the Contractor's expense.

New existing backflow preventers shall be retested one year after the satisfactory completion of the first tests or 10 days prior to completion of the plant establishment period, whichever occurs first.

Full compensation for retesting the backflow preventers shall be considered as included in the contract lump sum price paid for plant establishment work and no additional compensation will be allowed therefor.

### 10-2.05F SPRINKLERS

Sprinklers shall be the type, pattern and material and shall have the operating characteristics listed in the "Sprinkler Schedule" shown on the plans.

### 10-2.05G FINAL IRRIGATION SYSTEM CHECK

A final check of the existing and new irrigation facilities shall be done not more than 20 working days prior to the acceptance of the contract.

Length of watering cycles for use of potable water from water meters for the final check of irrigation facilities will be determined by the Engineer.

Remote control valves shall be checked for automatic performance.

Unsatisfactory performance of irrigation facilities installed by the Contractor shall be repaired and rechecked at the Contractor's expense until satisfactory performance is obtained, as determined by the Engineer.

Repair or replacement of unsatisfactory performance of existing irrigation facilities shall conform to the provisions of "Existing Highway Irrigation Facilities" elsewhere in these special provisions.

Nothing in this section, "Final Irrigation System Check," shall be construed as relieving the Contractor of full responsibility to make good or repair the defective work or materials found at any time before the formal written acceptance of the entire contract by the Director.

Full compensation for checking the irrigation systems prior to the acceptance of the contract shall be considered as included in the contract lump sum price paid for plant establishment work and no additional compensation will be allowed therefor.

## SECTION 10-3. BRIDGE ELECTRICAL SYSTEMS

### 10-3.01 DESCRIPTION

Modifying bridge electrical systems shall conform to the provisions in Section 86, "Signals, Lighting and Electrical Systems," of the Standard Specifications and these special provisions.

The modification of bridge electrical systems shall consist of removing and relocating electrical facilities in conflict with the seismic retrofit work as shown on the electrical plans. The work includes, but is not limited to the removal and relocation of electrical service, conduits, conduit hangers, cables, cable supports, pull boxes, high voltage vault and installing new conduits, pull boxes, high voltage pull box and wiring as shown on the plans.

**Related work.--**Earthwork, foundations, sheet metal, painting and such other work incidental to and necessary for the proper installation and operation of the electrical system shall be done in accordance with the requirements specified for similar work in the Standard Specifications.

### 10-3.02 COST BREAK-DOWN

The Contractor shall furnish to the Engineer a cost break-down for each contract lump sum item of work described in this Section 10-3.

The Contractor shall determine the quantities required to complete the work shown on the plans. The quantities and values shall be included in the cost break-down submitted to the Engineer for approval. The Contractor shall be responsible for the accuracy of the quantities and values used in the cost break-down submitted for approval.

No adjustment in compensation will be made in the contract lump sum prices paid for the various electrical work items due to any differences between the quantities shown in the cost break-down furnished by the Contractor and the quantities required to complete the work as shown on the plans and as specified in these special provisions.

The sum of the amounts for the units of work listed in the cost break-down for electrical work shall be equal to the contract lump sum price bid for the work. Overhead and profit shall be included in each individual unit listed in the cost break-down, however, costs for traffic control system shall not be included. Bond premium, temporary construction facilities, plant and other items will not be paid for under the various electrical work items and shall be included in the mobilization bid item for the entire project.

The cost break-down shall be submitted to the Engineer for approval within 15 days after the contract has been approved. The cost break-down shall be approved, in writing, by the Engineer before any partial payment for the items of electrical work will be made.

At the Engineer's discretion the approved cost break-down may be used to determine partial payments during the progress of the work and as the basis of calculating the adjustment in compensation for the item or items of electrical work due to changes ordered by the Engineer. When an ordered change increases or decreases the quantities of an approved cost break-down, the adjustment in compensation may be determined at the Engineer's discretion in the same manner specified for increases and decreases in the quantity of a contract item of work in accordance with Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.

The cost breakdown shall, as a minimum, include the following items:

conduit - list by each size and installation method
pull boxes - each type
conductors - each size and type
high voltage vault- each type

**SUBMITTALS.--**

**Product data.--**A list of materials and equipment to be installed, manufacturer's descriptive data, and such other data as may be requested by the Engineer shall be submitted for approval.

Manufacturer's descriptive data shall include complete description, performance data and installation instructions for the materials and equipment specified herein.

Manufacturer's descriptive data shall be submitted for the following:

Conduit-list by size and installation method
Pull boxes and high voltage vault-each type
High voltage conductor splicing method and kit
Ground rod

Attention is directed to the provisions in Section 5-1.01, "Authority of the Engineer," of the Standard Specifications. The Engineer may request submittals for materials or products where submittals have not been specified in these special provisions, or may request that additional information be included in the specified submittals, as necessary to determine the quality or acceptability of such materials or products.

The submittals shall be delivered to the Office of Structures Design, Documents Unit, Fourth Floor, 1801 30th Street, Sacramento, or mailed to the Office of Structures Design, Documents Unit, P.O. Box 942874, Mail Station #9, Sacramento, California 94274-0001.

Each submission of drawings, material lists and descriptive data shall consist of at least five copies. Two copies will be returned to the Contractor either approved for use or returned for correction and resubmittal.

Each separate item submitted shall bear a descriptive title, the name of the project, district, county, and contract number. Plans and detailed drawings shall be not larger than 22"x36".

The material list shall be complete as to name of manufacturer, catalog number, size, capacity, finish, all pertinent ratings, and identification symbols used on the plans and in the special provisions for each unit.

Unapproved samples and samples not incorporated in the work shall be removed from State right of way, when directed by the Engineer.

**10-3.03 CLOSEOUT SUBMITTALS.--**

**Project record drawings.--**Project record drawings shall be submitted in accordance with the requirements listed below.

One set of the project plans shall be kept on file by the Contractor for the sole purpose of recording as-built information and shall be so marked. Data to be recorded shall include, but not limited to, all clarification and change orders, location of underground utilities, and changes in size, manufacture or location of features shown on the plans. In addition, the locations of significant items such as main filters, controls, isolating valves, and similar items shall be highlighted on this set of project record drawings.

All corrections shall be made in red ink or red pencil. Superseded material shall be neatly lined out. Original figures shall not be eradicated nor written over. Each sheet shall be clearly marked as having "As-Built Changes" or "No As-Built Changes," as appropriate. The Contractor shall sign and date each sheet of the plans certifying that all information shown is correct.

Additional drawings shall be submitted when as-built information cannot be clearly shown on existing drawings. Supplemental drawings for as-built information shall be not less than 11" x 17" in size and shall have the contract number on each drawing.

Final location of all underground work shall be recorded by depth from finished grade and by offset distance from permanent surface structures, for example: buildings, curbs, walks, etc. Equipment within the building and all concealed conduits shall be recorded by offset distances from building walls.

The Contractor shall periodically review the set of record drawings with the Engineer during the progress of the work to assure that all changes and other required information are being recorded.

Before completion of the work, the Contractor shall request a review of the record drawings to determine completeness and adequacy. If the record drawings are unacceptable, the Contractor shall inspect and measure the project and record the required additional information.

The record set of plans shall be delivered to the Engineer prior to acceptance of the contract.

**10-3.04 MAINTAINING EXISTING AND TEMPORARY ELECTRICAL SYSTEMS**

The Contractor shall conform or exceed the safety practice of the state forces in the lockout and tag procedure. Safety meeting shall be conducted before start of work.

During construction, interruption to existing circuits will be permitted for one hour each day by the Engineer. The Contractor shall obtain a safety circuit clearance from the Engineer before he starts work on any existing circuit. The appropriate electrical circuits will be disconnected by state personnel and "Men at Work" sign shall be posted at the disconnect by the Contractor.

480 Volt AC systems as shown on the plans shall be maintained in operation during the modification work. Contractor shall either arrange for temporary service with the utility company or provide generators for maintaining the existing system in operation.

During the construction, roadway lights, sign lighting, changeable message sign, flashers, power to Caltran's maintenance yard, Supervisory Control And Data Acquisition (SCADA) system and all other systems in the bridge shall be maintained in operational mode. Changeable message sign shall be manually operated during any interruption of the

circuits to allow for modification. If the scheduled work of the Contractor will require interruption of the existing SCADA system for an overnight period, manual operation of all the above systems shall be conducted by the Contractor.

All circuits to the bridge shall remain energized. No power outage will be permitted unless authorized by the Engineer.

**CONDUITS AND FITTINGS.--**

Conduit shall conform to Section 86-2.05 “Conduit” in the Standard Specifications and these special provisions.

Rigid steel conduit shall be used unless otherwise shown on the plans or specified in these special provisions.

Liquid-tight flexible metal conduit shall be used where shown on the plans.

Conduit trade sizes are shown on the plans. No deviation from the conduit size shown on the plans will be permitted without written permission from the Engineer.

A conduit not yet terminated in a box shall have the ends protected by installing a coupling and a plug wrench tight.

A pull rope shall be installed in all empty conduits. At least 2 feet of pull rope shall be doubled back into the conduit at each termination.

Locations of conduit runs shall be planned in advance of the installation and coordinated with the air and water piping modification work in the same areas and shall not unnecessarily cross other conduits or pipe, nor block access to mechanical or electrical equipment.

Exposed conduit shall be installed parallel and at right angles to the building or bridge lines.

All raceway systems shall be secured to bridge structures using specified fasteners, clamps and hangers as specified elsewhere in these special provisions under "Electrical supporting devices".

Single conduit runs shall be supported by using one hole pipe clamps. Where run horizontally on walls in damp or wet locations, conduit shall be installed with "clamp backs" to space conduit off the surface.

When a standard coupling cannot be used for coupling metal type conduit, a UL listed threaded union coupling, as specified in the third paragraph in Section 86-2.05C, "Installation," of the Standard Specifications, or a concrete-tight split coupling or concrete-tight set screw coupling shall be used.

After conductors have been installed, the ends of conduits terminating in pull boxes shall be sealed with an approved type of sealing compound.

**Conduit terminations.--**Rigid steel conduits shall be securely fastened to cabinets and boxes using 2 locknuts and specified insulating metallic bushing. Conduit termination at exposed weatherproof enclosures and cast outlet boxes shall be made watertight using specified hubs.

All future conduits terminated in underground pull boxes or exposed indoor and outdoor shall be provided with watertight conduit plugs.

**10-3.05 CONDUCTORS AND WIRING**

Conductor shall conform to Section 86-2.08, "Conductors," in the Standard Specifications and as specified in these special provisions.

The Contractor shall provide the Engineer a Certificate of Compliance from the manufacturer in accordance with the provisions of Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for all the conductors and cables furnished for the project.

**Conductors, 600 volts or less.--**All conductors rated 600 volts or less shall meet the following requirements:

1. Conductors shall be type XHHW in wet and outdoor locations.
2. Conductors shall be type THHN in dry locations.

Wire connections and devices shall be pressure or compression type, except that connectors for No. 10 AWG and smaller conductors in dry locations may be pre insulated spring-pressure type.

Underground conductors splices shall be insulated by "Method B".

The neutral and equipment grounding conductors shall be identified as follows:

Neutral conductor shall have a white or natural gray insulation.

Equipment grounding conductor shall be insulated. Equipment grounding conductors shall have green insulation over its entire length.

Feeder and branch circuit ungrounded conductors shall be color coded by continuously colored insulation. Ungrounded conductor color coding shall be as follows:

| SYSTEM | COLOR CODE |
|---|---|
| 120/208 3-phase | black, red, blue |

Where a branch circuit enters or leaves a conduit, panel, gutter, or junction box, each conductor shall be identified by its panelboard and circuit number. Identification shall be made with one of the following:

1. Adhesive backed paper or cloth wrap-around markers with clear, heat shrinkable tubing sealed over either type of marker.
2. Self-laminating wrap around type, printable, transparent, permanent heat bonding type thermoplastic film markers.

**Conductors, above 600 volts.--**All conductors rated above 600 volts shall meet the following requirements:

High voltage conductors shall match the existing cables. The existing high voltage conductors are shielded power cable with 1/0 stranded aluminum conductor, ethylene propylene rubber (EPR)based, thermosetting compound insulation rated for 15 kV.

Splice for high voltage conductor shall be made with a heat-shrinkable shielded power cable splicing kit consisting of a ground clamp, a solder-blocked ground braid, and a shielding mesh. The splice kit shall allow for out of round cable and shall be rated for 15kV, for conductor size #2 to 4/0. Splice shall be made in accordance with the manufacturers instruction.

The installed cable and splice shall be free from defect and perform satisfactory under load. Contractor shall warrantee the workmanship for at least one year from the date of acceptance of the contract.

The Contractor shall employ the services of a company specializing in medium voltage termination and splices to perform all the medium voltage splices and termination.

**Conductor installation.--**Conductors shall not be installed in conduit until all work of any nature that may cause injury is completed. Care shall be taken in pulling conductors that insulation is not damaged. Any approved non-petroleum base and insulating type pulling compound shall be used as needed.

All conductors shall be installed and tested in accordance with manufacturer's recommendations.

Provide 12 inches of slack at each outlet and device connection.

The conductors in panelboards and control equipment cabinets, low voltage control center shall be neatly trained along a path from the terminals to their exit point. The conductors shall have ample length to traverse the path without strain, but shall not be so long to require coiling, doubling back, or cramming. The path shall traverse the panelboard gutter spaces without entering a gutter containing service conductors and unless otherwise shown on the plans, without entering the gutter space of any panelboard feeder.

All pressure type connectors and lugs shall be retightened after the initial set.

**MISCELLANEOUS MATERIALS.--**

**Gutter**.--Gutter shall be NEMA type 12, 6" X 6", minimum 14 gauge steel body and with gasketed hinged cover, external screw clamps and factory installed barrier inside to separate the communication cables from power conductors. The length of the gutter shall be as shown on the plans and shall have hot dip galvanized finish.

**Pull boxes.--**Pull boxes shall conform to Section 86-2.06, “Pull Boxes,” in the Standard Specifications and as specified in these special provisions.

**Pull box installation.--**Communication pull box covers shall be marked "COMMUNICATION" .

**High voltage vault**.-- High voltage vault shall be 3' x 6' (inside dimensions) x 4' deep with 6 inches thick walls, bottom and top. The high voltage vault shall be precast or cast-in-place concrete designed for H-20-44 bridge loading. The vault lid shall be two piece galvanized steel checker plate lid with locking screws. Screws shall be stainless steel or brass screws. High voltage vault lid shall be marked “HIGH VOLTAGE"

**High voltage vault installations**.--The top of the vault shall be flush with the finished surface in paved areas and 2 inches above the finished grade in unpaved areas. Where conduits enter the manhole, the space around the conduit shall be grouted tightly or cast in the wall.

**Existing vault no. 1**.-- Existing vault no. 1 is 4' x 4' (inside dimensions) precast concrete vault with two piece galvanized steel checker plate lid. A 6 inch extension shall be used so that top of the vault shall be flush with the finished surface.

**Existing vault no. 1 installations**.-- A 6 inch precast concrete extension section shall be used between top and bottom sections to raise the top so that top of the vault shall be flush with the finished surface in paved areas.

**Pull ropes.--** Pull ropes shall be nylon or polypropylene with a minimum tensile strength of 500 pounds.

**Watertight conduit plugs.--**Watertight conduit plugs shall be a hollow or solid stem expansion plugs complete with inner and outer white polypropylene compression plates and red thermoplastic rubber seal. Seal material shall be non-stick type rubber resistant to oils, salt, and alkaline substances normally available at the construction sites.

**Anchorage devices.--**Anchorage devices shall be corrosion resistant stainless steel toggle bolts, wood screws, bolts, machine screws, studs, expansion shields, and expansion anchors and inserts.

**Anchorages.--**Hangers, brackets, conduit straps, supports, and electrical equipment shall be rigidly and securely fastened to surfaces by means of toggle bolts on hollow masonry; expansion shields and machine screws, or expansion anchors and studs or standard preset inserts on concrete or solid masonry; machine screws or bolts on metal surfaces; and wood or lag screws on wood construction.

Anchorage devices shall be installed in accordance with the anchorage manufacturer's recommendations.

**Electrical supporting devices.--**Electrical supporting devices shall be one hole conduit clamps with clamp backs, hot-dipped galvanized, malleable cast iron. Beam clamps supporting conduit in box girders shall be malleable iron.

Electrical supporting devices for PVC coated conduit shall be PVC coated one hole conduit clamp with PVC coated clamp back.

Construction channel shall be hot dipped galvanized steel channel. Hot dipped galvanized steel channel shall be minimum 12-gage with 17/32 inch diameter bolt holes, 1 1/2 inches on center in the base of the channel.

Damage to galvanizing and cut ends shall be repaired as specified in section 75-1.05, “Galvanizing” of the Standard Specifications.

**Ground rod.--**The ground rod shall be of the copper-clad steel rod type and shall be not less than 10-feet in length.

**TESTING.--**

**Functional testing.--**After all the conduits, cables and conductors have been installed and connected, the electrical and communication system shall be tested in the presence of the Engineer to demonstrate that the system functions properly. The Contractor shall make necessary repairs, replacements, adjustments and retests at his expense.

**MEASUREMENT AND PAYMENT.--**

The contract lump sum price paid for bridge electrical systems shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in modifying electrical and communication systems, complete in place, including removal and relocation, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

## SECTION 10-4. SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS

### 10-4.01 DESCRIPTION

Lighting, lighting (City park), modifying lighting, and inductive loop detector shall conform to the provisions in Section 86, "Signals, Lighting and Electrical Systems," of the Standard Specifications and these special provisions.

Access to the utility room in park restrooms shall be coordinated with the Parks and Recreation Department, Inland Parks Division Area Manager, telephone (619) 235-1127. A minimum of two working days notice shall be given to the Engineer and the Area Manager prior to performing any work at the utility room.

A minimum of two working days notice shall be given to the Engineer and the City of San Diego Traffic Signal Supervisor, telephone (619) 525-8670 prior to performing any work at the traffic signal at the intersection of National Avenue and Crosby Street.

### 10-4.02 COST BREAK-DOWN

The Contractor shall furnish to the Engineer a cost break-down for each contract lump sum item of work described in this Section 10-3.

The Contractor shall determine the quantities required to complete the work shown on the plans. The quantities and values shall be included in the cost break-down submitted to the Engineer for approval. The Contractor shall be responsible for the accuracy of the quantities and values used in the cost break-down submitted for approval.

No adjustment in compensation will be made in the contract lump sum prices paid for the various electrical work items due to any differences between the quantities shown in the cost break-down furnished by the Contractor and the quantities required to complete the work as shown on the plans and as specified in these special provisions.

The sum of the amounts for the units of work listed in the cost break-down for electrical work shall be equal to the contract lump sum price bid for the work. Overhead and profit shall be included in each individual unit listed in the cost break-down, however, costs for traffic control system shall not be included. Bond premium, temporary construction facilities, plant and other items will not be paid for under the various electrical work items and shall be included in the mobilization bid item for the entire project.

The cost break-down shall be submitted to the Engineer for approval within 15 days after the contract has been approved. The cost break-down shall be approved, in writing, by the Engineer before any partial payment for the items of electrical work will be made.

At the Engineer's discretion the approved cost break-down may be used to determine partial payments during the progress of the work and as the basis of calculating the adjustment in compensation for the item or items of electrical work due to changes ordered by the Engineer. When an ordered change increases or decreases the quantities of an approved cost break-down, the adjustment in compensation may be determined at the Engineer's discretion in the same manner specified for increases and decreases in the quantity of a contract item of work in accordance with Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.

The cost breakdown shall, as a minimum, include the following items:

foundations - each type
standards and poles - list by each type
conduit - list by each size and installation method
pull boxes - each type
conductors - each size and type
loop detectors - each type
luminaires - each type

**10-4.03 MAINTAINING EXISTING AND TEMPORARY ELECTRICAL SYSTEMS**

Traffic signal system shutdowns shall be limited to periods allowed for lane closures listed or described under "Maintaining Traffic," elsewhere in these special provisions.

**10-4.04 EXCAVATING AND BACKFILLING**

The third paragraph in Section 86-2.01, "Excavating and Backfilling," of the Standard Specifications is amended to read:

The excavations shall be backfilled in conformance with the provisions in Section 19-3, "Structure Excavation and Backfill." Backfill placed in conduit trenches to be outside of slope lines and not under pavement shall be compacted to a relative compaction of not less than 90 percent.

Backfill on slopes and in areas where pavement is to be constructed shall be compacted to a relative compaction of not less than 95 percent.

**10-4.05 FOUNDATIONS**

Placement of concrete for foundations shall conform to the provisions of Section 51, "Concrete Structures."

The first sentence of the eighth paragraph in Section 86-2.03, "Foundations," of the Standard Specifications is amended to read:

Anchor bars or studs and nuts, except for Type 30 and Type 31 lighting standards, shall conform to ASTM Designation: A 307. Headed anchor bolts for foundations shall conform to the specifications of ASTM Designation: A 307, Grade B with S1 supplementary requirements. At the option of the contractor, nonheaded anchor bolts for foundations shall conform either to the specifications of ASTM Designation: A 307, Grade C or to the provisions in AASHTO Designation: M 314, Grade 36 or 55 with S1 supplementary requirements. When nonheaded anchor bolts conforming to the specifications of ASTM Designation: A 307, Grade C are furnished, the end of each fabricated anchor bolt shall be either coded by end stamping as required in ASTM Designation: A 307 or the end that projects from the concrete shall be permanently coded with a green color by the manufacturer.

**10-4.06 CITY PEDESTRIAN ELECTROLIER**

City pedestrian electrolier shall consist of a steel pole, mounting arm, luminaire and foundation.

Steel poles shall be straight and square in cross section. The dimensions shall be as shown on the plans. The pole shall be of single piece construction and shall conform to ASTM-A-500 grade B with a minimum yield strength of 46,000 psi.

Steel poles shall be furnished with a handhole and cover, grounding lug, base plate, anchor bolts and decorative anchor bolt covers.

The mounting arm shall be rectangular extruded aluminum with a minimum 0.125 inch wall thickness. The mounting arm shall be fastened to the steel pole by a minimum of two through bolts or studs, nuts and washers.

The luminaire shall be Type II medium-cutoff. It shall be rectangular in shape and shall have the following nominal dimensions:

Length: 16 to 24 inches
Width: 12 to 17 inches
Depth: 8 inches

The luminaire shall conform to Section 86-6.01, "High Pressure Sodium Luminaires," of the Standard Specifications except that paragraphs 4 and 5 do not apply.

With a 12-foot mounting height, the luminaire shall maintain a minimum of 0.25 foot-candle at least 25 feet each side, along the longitudinal roadway line below the luminaire, and a minimum of 4 foot-candle at a transverse roadway distance from the luminaire location equal to 1.5 times the luminaire mounting height.

The dimensions of the foundation and anchor bolts shall be as shown on the plans. Anchor bolts shall conform to Section 86-2.03, "Foundations," of the Standard Specifications.

All exterior metal surfaces shall be cleaned and painted with a black semi-gloss enamel finish in accordance with Section 86-2.16, "Painting," of the Standard Specifications.

**10-4.07 CONDUIT**

Conduit to be installed underground shall be the rigid non-metallic type unless otherwise specified.

The conduit in a foundation and between a foundation and the nearest pull box shall be the rigid non-metallic type.

When rigid non-metallic conduit is installed in a trench (not in pavement or under portland cement concrete sidewalk), after the bedding material is placed and conduit installed, the trench shall be backfilled with commercial quality concrete, containing not less than 376 pounds of portland cement per cubic yard, to not less than 4 inches above the conduit before additional backfill material is placed.

After conductors have been installed, the ends of conduits shall be sealed with an approved type of sealing compound.

Pull ropes for use when installing cables in rigid non-metallic conduit shall consist of a flat, woven, lubricated, soft-fiber polyester tape with a minimum tensile strength of 1,800 pounds and shall have printed sequential measurement markings at least every 3 feet.

**10-4.08 PULL BOXES**

Grout shall not be placed in bottom of pull boxes.

Where the sump of an existing pull box is disturbed by the Contractor's operation, the sump shall be reconstructed as shown on Standard Plan ES-8.

**10-4.09 CONDUCTORS AND WIRING**

Splices of conductors shall be insulated with heat-shrink tubing of the appropriate size after thoroughly painting the spliced conductors with electrical insulating coating.

Heat-shrink material shall be heated as recommended by the manufacturer.

The Contractor shall provide the Engineer a Certificate of Compliance from the manufacturer in accordance with the provisions of Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for all the conductors and cables furnished for the project.

In addition to the requirements for splices in detector circuits, the open end of cable jackets or tubing shall be sealed in a manner similar to the splicing requirements to prevent the entrance of water.

Section 86-2.09D, "Splicing," of the Standard Specifications is amended by retitling as "Splicing and Terminations," and the last paragraph is amended to read:

All splices and terminal lugs for conductor sizes No. 8 and smaller shall be soldered by the hot iron, pouring or dipping method. Open flame soldering will not be permitted.

**10-4.10 CONVENIENCE RECEPTACLES**

Convenience receptacles shall have ground-fault circuit interruption as defined by the Code. Circuit interruption shall occur on 6 milliamperes of ground-fault current and shall not occur on less than 4 milliamperes. Receptacles shall be suitable for outdoor installation and shall be installed in a weatherproof housing with rainproof lift covers.

**10-4.11 SERVICE**

Multiple pole circuit breakers shall be the internal trip type.

Circuit breakers shall be mounted on non-energized clips. All circuit breakers shall be mounted vertically with the up position of the handle being the "ON" position.

**10-4.12 NUMBERING ELECTRICAL EQUIPMENT**

Self-adhesive reflective numbers will be furnished by the State as provided under "State-Furnished Materials" of these special provisions.

The Contractor shall place the numbers on the equipment as directed by the Engineer.

Reflective numbers shall be applied to a clean surface.

Where shown on the plans, self-adhesive equipment numbers shall be placed for all electroliers. On electroliers, the numbers shall be placed as shown on Standard Plan ES-6A.

Where new numbers are to be placed on existing or relocated equipment, the existing numbers shall be removed.

**10-4.13 DETECTORS**

Like-numbered detector loops, when shown on the plans, shall be connected to the same detector lead-in cable.

The third paragraph of Section 86-5.01A(5), "Installation Details," of the Standard Specifications is amended to read:

Slots cut in the pavement shall be washed clean, blown out and thoroughly dried before installing conductors. Residue resulting from slot cutting operations shall not be permitted to flow across shoulders or lanes occupied by public traffic and shall be removed from the pavement surface before any such material flows off of the pavement surface. Residue from slot cutting operations shall be disposed of outside the highway right of way in accordance with Section 7-1.13.

The diameter and spacing of the Type E detector loops, shown on Standard Plan ES-5B, is changed to 6 feet and 10 feet, respectively. The sides of the slot shall be vertical and the minimum radius of the slot entering and leaving the circular part of the loop shall be 1 1/2 inches. Slot width shall be a maximum of 3/4 inch. Loop wire for circular loops shall be Type 2. Slots of circular loops shall be filled with elastomeric sealant or hot melt rubberized asphalt sealant.

**10-4.14 LUMINAIRES**

Section 86-6.01, "High Pressure Sodium Luminaires," of the Standard Specifications is amended by adding the following to the sixth paragraph:

C. a vertical plane at a minimum peak acceleration level of 1.0 g peak-to-peak sinusoidal loading (same as 0.5 g peak) with the internal ballast installed, for a minimum of 2 million cycles without failure of any luminaire parts.

Luminaires for davit arm electroliers shall comply with the following requirements:

Luminaires shall be high pressure sodium, roadway type; 250 watt, 480 volt, designed to attach to the existing 37-foot tapered steel poles. Luminaires shall be the power door type conforming to the requirements of Section 86-6.01, "High Pressure Sodium Luminaires," of the Standard Specifications.

Luminaire lens shall be a prismatic refractor with approximate semi-spherical shape similar to the existing refractors to be replaced.

Illumination pattern shall be ANSII-IES medium semi-cutoff Type II.

Luminaires shall be mounted rigidly and securely to the existing poles in accordance with the manufacturer's recommendations. Mounting bolts shall be torqued to the manufacturer's specifications plus or minus 20 percent.

The Contractor shall provide all supports, tenons, fasteners and other hardware necessary to support the luminaires.

**10-4.15 SURFACE MOUNT LUMINAIRES**

Surface mount luminaires for lighting at the canopy (also referred to as Hex 20M) shall conform to the details shown on the plans, the requirements for wall luminaires as described in Section 86-6.03, "Soffit and Wall Luminaires, and Lamps," of the Standard Specifications, and these special provisions.

Surface mount luminaire shall be a “Garage Sentinel” luminaire, Ordering No. GS-P-1-2-R-SR-SU as manufactured by Jet-Phillips JPL Lighting, or equal, and shall include all the items detailed for surface mount luminaire as shown on the plans, and as specified in these special provisions.

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The Certificate of Compliance shall certify that surface mount luminaire conforms to the contract plans, specifications and these special provisions.

The surface mount luminaire shall be installed in conformance with the manufacturer's installation instructions and these requirements.

**GENERAL.**--Each surface mount luminaire shall be designed for surface mounting as shown on the plans. The fixture shall be a fully enclosed type, raintight, dusttight, and corrosion-resistant.

**HOUSING.**--The housing shall be ruggedly constructed, shall be rigid, and shall be fabricated of aluminum or fabricated of other material which will provide equivalent strength and corrosion resistance.

The housing shall have the manufacturer’s baked-on enamel finish of dark bronze.

The maximum dimensions of the housing with cover shall be suitable for the available space on the underside of the Hex 20M structure as shown on the plans and shall not exceed the following nominal dimensions:

Length: 12 inches
Width: 12 inches
Depth: 9 inches

All external machine screw parts, lock washers, hinge pins, etc., shall be made of stainless steel.

**REFLECTOR.**--Reflectors shall have hemmed edges for safe handling.

**REFRACTOR.**--The refractor shall be a polycarbonate material.

**GASKETS.**--Gaskets between the cover and the fixture housing shall be uniform and even-textured, shall be either square-section polyvinyl chloride formed tube, rubber or closed cell neoprene foam, and shall have a pressure sensitive adhesive on one side.

Gaskets shall be neatly applied to thoroughly degreased, clean surfaces with a suitable heat resistant adhesive, which will not allow the gasket to slip at a temperature of 71° C. (continuous).

**LAMPHOLDER.**--Lampholders shall be listed by UL or ETL for outdoor use, shall be provided with nickel or silver coated contacts and waterproofed lead entrance. One lampholder for each lamp shall be of the spring-loaded type.

Springs for lampholders shall not be a part of the current carrying circuit.

**CONDUCTORS**.--All conductors within the fixture shall be UL or ETL listed appliance wiring material (AWM).

**LAMPS**.--Lamps shall be the wattage and voltage shown on the plans.

**FUSES**.--Fuses shall be the miniature, slow blowing type, with appropriate current and voltage rating.

Fuseholder shall be a panel mounting type with threaded or bayonet type knob which grips the fuse tightly for extraction.

**BALLAST.**--Ballasts shall be the non-regulating reactor or high reactance type. Ballast shall be listed by UL or ETL for outdoor operation.

**10-4.16 REMOVING, REINSTALLING OR SALVAGING ELECTRICAL EQUIPMENT**

Salvaged electrical materials shall be hauled to the District Recycle Yard, located near the south end of the Route 15 High Occupancy Vehicle Lanes (HOV) in the City of San Diego, San Diego County and stockpiled.

The Contractor shall provide equipment, as necessary, to safely unload and stockpile the material. A minimum of two working days notice shall be given to the Engineer and the District Electrical Recycle Coordinator, telephone (619) 688-6842, prior to delivery.

**10-4.17 PAYMENT**

Full compensation for hauling and stockpiling electrical materials shall be considered as included in the contract price paid for the item requiring the material to be salvaged, and no additional compensation will be allowed therefor.